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ABSTRACT

This workbook, developed for an international workshop held in the Philippines in 1994, is designed to enrich adult environmental education worldwide and to ensure that the International Treaty on Environmental Education for Sustainable Societies and Global Responsibility is implemented in an action-oriented program. The workbook is organized in five sections. Section 1 introduces the workbook and the process; it includes information on the International Council for Adult Education and the Learning for Environmental Action Program and provides a rationale for the workbook, background to the workshop, and workshop goals. Section 2 contains 18 case studies, some of which were written by workshop participants and others reprinted from newsletters and other sources. The case studies report on environmental education projects and workshops in the following countries: Ethiopia, Uganda, Uruguay, Canada, Argentina, Cameroon, Brazil, Lesotho, South Africa, Chad, Botswana, Bolivia and India, the Netherlands, Italy, Hungary, Sri Lanka, and Hong Kong. The third section consists of background materials on environmental education that can be used as references for training workshops. Some of the topics covered include the following: the history and definition of environmental education, basic concepts of environmental education, nonformal environmental education, planning environmental education at the national level, principles of environmental citizenship, principles of adult education, adult education program planning and design, needs assessments, the adoption and diffusion of new ideas, changing behavior, urban problems and environmental education, more on urban environmental education, teaching global change through environmental education, round tables--an approach to decision making, how to build consensus, producing environmental education materials, using computers in environmental education, and environmental education networks. Section 4 provides sample worksheets that can be used in training workshops. The final section lists resources such as magazines and newsletters, environmental education centers, and other information and 27 references. Three appendixes contain the following: the Treaty on Environmental Education for Sustainable Societies, the Pre-workshop questionnaire for the Philippines workshop and the agenda for the Philippines workshop, and four background papers--"Workshop Goals Proposed by the Meeting of Experts at Curacao, Netherlands Antilles, May 12-18, 1994"; "SEED'ing for a Liberative Adult Education in Environment in the Asian South Pacific Region" (Noel C. Duhaylungsod); "Trends and New Projects for Environmental Education in Germany" (Heino Apel); and "Adult Environmental Education: A Regional Report for North America" (Mark A. Burch). (KC)

ED 393 964

ADULT ENVIRONMENTAL EDUCATION

A WORKBOOK TO MOVE FROM WORDS TO ACTION

Produced for the:

Learning for Environmental Action Programme

International Council for Adult Education

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PREFACE

The thoughts and ideas presented in this workbook are the ideas of the author and do not necessarily represent those of the International Council for Adult Education or the sponsoring agencies. The author takes sole responsibility for any misinterpretation of articles summarized and apologizes in advance for any possible errors and omissions. The work was completed with the intention of providing a broad range of information and issues in the interest of promulgating further environmental education throughout the world and was done with sincere and honest intentions.

Material from this workbook may be reproduced for educational purposes provided credit is given to the author and the ICAE.

It is hoped that this workbook will be the first in a series of workbooks that can be used throughout the world to help encourage action-oriented environmental education programming for adults of all ages and from all sectors (home, work, community, church etc.). We also hope that this workbook will be regularly updated and enriched by the recommendations of its readers and through workshops like the first one in the Philippines.

For comments and to order additional copies of this workbook, please contact:
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Education is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues(...). Both formal and non-formal education are indispensable to changing people's attitudes so that they have the capacity to assess and address their sustainable development concerns. It is also critical for achieving environmental and ethical awareness, values and attitudes, skills and behaviour consistent with sustainable development and for effective public participation in decision-making. To be . effective, environment and development education should deal with the dynamics of both the physical/biological and socio-economic environment and human (which may include spiritual development, should be integrated in all disciplines, and should employ formal and non-formal methods and effective means of communication.

Agenda 21, Chapter 36.3
(UNCED, Rio de Janeiro, 3-14 June 1992)

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INFORMATION ON THE INTERNATIONAL COUNCIL FOR ADULT EDUCATION

The International Council for Adult Education was founded in 1973 through the efforts of the late J. Roby Kidd, a prominent Canadian adult educator with the support and endorsement of 19 national adult education associations.

ICAE's Executive Committee is an elected body of 24 practitioners in the field of adult education, representing 27 countries. A general assembly of all members meets every four years. The ICAE is the largest international NGO based in Canada. It is also a major international non-governmental organization working in adult education with consultative status at UNICEF, UNESCO, ECOSOC, ILO and FAO.

The ICAE is a federation of 100 autonomous national, regional and sectoral associations. Priority programmes are in the field of women, literacy, environment, and peace and human rights. Additional specialized decentralized working groups and projects exist in the fields of primary health care, training, history, special learning needs, older adults, transformative research, popular culture, and criminal justice.

The Fifth World Assembly of the ICAE was held in Cairo, Egypt, September 1994.

According to its Constitution, the International Council for Adult Education aims:

> "to promote the education of adults in all its variety of forms and dimensions, and in relationship to the need for healthy growth and development of individuals, communities and societies, as a place for encounter, as a means of enhancing international understanding and world peace, as a means of achieving economic, cultural and social development, as a means of advancing the knowledge, skills and competencies of individuals throughout the world, and as a means of achieving fuller participation by such individuals and groups in the determination of their economic, social and cultural development; by working for the implementation of the provisions of the Recommendation on the Development of Adult Education adopted by the General Conference of UNESCO at its 19th session, Nairobi, 26th November 1976; by encouraging, supporting and strengthening the activities of member organizations; by stimulating the establishment, where such do not exist, of national organizations for the further promotion, development and coordination of education for adults; by cooperating

> with intergovernmental and international non-governmental organizations wholly or partly concerned with the education of adults; by encouraging all relevant national organizations to become active and supportive members of their respective and relevant regional organizations having a major concern for the education of adults."

The ICAE Resource Centre

In September of 1990, on International Literacy Day, the ICAE International Literacy Resource Centre was opened to the public. Its mandate was to provide culturally diverse, basic classroom resources appropriate for the multicultural environment. Other resource materials included newsletters and journals from literacy organizations around the world, and position papers, research, and conference reports discussing literacy. The Resource Centre also offered seminars with practitioners and researchers from around the world.

The ICAE Resource Centre responds to between fifty and one hundred research requests, both in person, by telephone, and by mail, each month. The existing collection of resources has been expanded to include resources on popular and non-formal education, women's education, and participatory research. The Resource Centre has a growing collection of materials on environmental education and is promoting communication through electronic mail, which is the most environmentally friendly way of networking. The materials have been organized into three collections: a book collection of over 3,000 books; a periodical collection of over 150 international newsletters and journals, and a vertical file collection consisting of thousands of ephemeral or grey materials (unpublished papers, articles, brochures, booklets, etc.) To facilitate the dissemination of information on given topics, a bibliographic database has been designed and installed and approximately 1,700 records have been entered into the system. Likewise, nine selected bibliographies have been produced and distributed and a Catalogue of International Literacy Materials has been prepared (some of the holdings of the ICAE Resource Centre related to the environment are contained in the Resource section). The Resource Centre is staffed by one full-time professional librarian. Clerical support is provided by volunteers.

The general objective of the ICAE Resource Centre is to improve the effectiveness of adult, popular, community, development, and literacy educators in Canada and worldwide by providing access to unique educational materials and information in the field of adult education.

THE LEARNING FOR ENVIRONMENTAL ACTION PROGRAMME (LEAP)

The Learning for Environmental Action Programme of the International Council for Adult Education was first discussed in January, during the World Assembly of Adult Education in Bangkok. By 1990 it had been adopted as one of the four priority programmes along with peace and human rights, women's education and literacy.

One of the major achievements of the Learning for Environmental Action Programme so far has been the organization of the International Journey for Environmental Education, which aimed to deepen and share the theoretical, methodological and practical aspects of environmental education as a way of protecting people and the quality of life and proposed a strategy of working with popular environmental education on an international level through the exchange of experiences between environmental and popular educators.

The key document of the Journey was the Treaty on Environmental Education for Sustainable Societies and Global Responsibility (contained in an appendix to this workbook). The Treaty was discussed in several seminars, workshops and study groups and there were several revisions made to the initial draft to incorporate ideas and suggestions received from participants of the Journey. The revised Treaty was presented to the International Forum of the Journey and was approved with modifications. The finalized document was signed by the organizations committed to overseeing its implementation. The Treaty has been distributed in English, French, Spanish and Portuguese and has been translated into a few other languages of the member organizations, recently into Arabic.

The Treaty is the first major product of international cooperation and global thinking about environmental education. It will serves as a basic document and source for further development in environmental education. The next major task is to implement the recommendations of the Treaty and to make them an integral part of day-to-day environmental education. This workbook is a part of this process.

There is a lot of local experience in environmental education all over the world: if this can be combined and shared globally, it will definitely contribute to raising awareness, concrete action and to the solution of the most critical environmental problems of the world.

Overall objectives of the Programme are:

- to exchange grassroots experience on the possible ways and forms of day-to-day implementation of the recommendations of the Treaty
- to find the most efficient ways to adapt international experience and to train adult educators for environmental programmes
- to publish up-to-date information on the progress of the programme in the environmental newsletter, collecting at the same time comments, critiques and further contributions to the programme
- to work out materials, curricula and methods for environmental education based on the Treaty
- to prepare and publish an updated bibliography on methodological aspects of environmental education
- to produce an international handbook based on the outcomes of the programme.

Participants of the programme are representatives of regional and national member organizations of ICAE who took part in the creation of the Treaty and/or are involved in environmental education and interested in participating in the programme. National and regional organizations are encouraged to appoint their experts, environmental adult educators, who are ready to share their experience in a participatory process and interested in achievements of environmental adult education in other parts of the world and who are willing to elaborate a version of their local programme (materials, curricula, methods) based on the Treaty for international consideration and to take part in a workshop that is to enhance international cooperation and exchange in the field of environmental education.

It is expected that the follow-up of the `Treaty' will result in the concrete implementation of its recommendations and the elaboration of the second phase of the Learning for Environmental Action Programme.

RATIONALE FOR THIS WORKBOOK

This workbook has been developed to use at a workshop in the Philippines but it is also hoped that it will used widely as a sampler for developing further training sessions on adult environmental education. Neither the workshop nor the workbook can take over the task and responsibility of local, grassroots programmes and training. There is an urgent need for training in the adult environmental education field and it's hoped that this workbook will assist in that process in some small way.

Our main aim is to identify those areas and methods where international cooperation and exchange is most needed so that the most efficient means of networking can be developed. In developing networks it will be critical to use local experience internationally and global experience locally so that the a more complete understanding of global issues can be developed. Most educators would agree that there is too little time and too few resources available to risk developing programmes at a national level without some form of international networking.

The workbook will begin the process of international cooperation to share experiences, ideas, and concerns and to develop action plans that will enhance adult environmental eduction in all areas of the world. Most environmental leaders agree on the importance of the education process in changing behaviours, attitudes, and skills so that a more environmentally responsible citizenry can respond to and be literate about environmental and sustainability issues. Critical in the development of these education programs is the need to identify current areas of expertise, experience, and programming.

WORKBOOK DESIGN - The workbook contains the following sections:

Introduction - An introduction to this workbook and the process
Case studies - Written by participants and taken from other resource documents
Background material - Materials that can be used as background reference materials for training workshops
Worksheets - sample worksheets that can be used in training workshops
Resources - Information on books and other materials
Appendices - The treaty on sustainable environmental education for sustainable societies and global responsibility and some other relevant materials related to the Philippines workshop

BACKGROUND TO THE WORKSHOP

Seven experts on adult environmental education gathered at Curacao, Netherlands Antilles in May of 1994 to develop a workshop program to strengthen and enrich international efforts to deliver environmental education to adult learners. Participants attempted to assess some of the needs of environmental educators working with adults, set some training goals based on this informal needs assessment, and develop a topical agenda for an international training workshop to be offered as an action component of the Learning for Environmental Action Program.

Once general goals had been identified, participants attempted to describe the general training which might provide topics for workshop sessions, more specific objectives which could guide sessional discussions, evaluation protocols, and methodological considerations which might be involved in such a workshop. The diversity of perspectives and needs of potential participants in the workshop to follow, influenced the discussion and necessitated a generalized approach. Many interesting and worthwhile contributions were proposed and a great wealth of potential workshop activities were suggested.

Throughout their deliberations, the training experts tried to keep in mind the goals of the Treaty on Environmental Education for Sustainable Societies and Global Responsibility on the one hand as well as their experience and knowledge regarding the needs of adult learners and the professionals who work with them. The meeting team were always cognizant of the challenges and constraints which always attend working on international issues and the diversity of needs, backgrounds, skills and experiences participants in such event would bring with them to the process.

Meeting Participants

Dr. Heino Apel, Pedagogical Institute of Adult Education, Frankfurt/M, Germany

Peter Basel, International Council for Adult Education

Mark A. Burch, Sustainable Development Specialist Canadian Association for Adult Education, Toronto, Canada

Lawrence Tsui, Macau Association for Continuing Education, Macau

Joaquin Esteva, Centro de Estudios Sociales y Ecologies (CESE), Mexico. Coordinator de la Red de Education Popular y Ecologia del CEAAL.

Sedney Jansen, Caribbean Regional Council for Adult Education Representative, Environmental Education

Wangari Mwangi, INADES-FORMATION, Kenya, West Africa

WORKSHOP GOALS

This workbook was developed for an international workshop to be held in Los Banos, Philippines in December of 1994 . The workbook has been designed to enrich adult environmental education world-wide. More specifically, it was developed to ensure that the International Treaty on Environmental Education for Sustainable Societies and Global Responsibility is implemented in an action-oriented programme. The workshop and this workbook are a first step towards ensuring that adult environmental education programmes are developed with a global context and with international cooperation.

In addition to looking at opportunities for partnership, educators are urged to identify major barriers and obstacles so that current gaps in adult environmental education can be addressed.

More specifically, the goals of the Los Banos workshop are:

1. To increase participant awareness and understanding of various national policies affecting environment and development issues.
2. To understand and use environmental education materials in an adult learning context.
3. To develop and acquire strategies for implementing action-oriented approaches to adult environmental education.
4. To identify strategies for understanding key environmental issues including values identification.
5. To acquire and use strategies for increasing learner participation, motivation and commitment for environmental action.
6. To share experiences, resources, and strategies for international networking.

These goals can be applied to other training opportunities in adult environmental education. The Los Banos workshop is being designed as an experimental model. Participant evaluation and feedback will be used to modify the design so that workshop can be repeated in other countries.

CASE STUDIES

Some of these studies have been written by participants in the workshop and others have been reprinted from newsletters and other sources. All sources have been referenced at the beginning of the case study.

ETHIOPIA

Case Study by Yousef Bertremariam and Christer Axen, Ministry of Education in Ethiopia:c/o Swedish Embassy, PCO, PO Box 1142, Addis Abeba, Ethiopia

A Workshop on National Environmental Education Network

Background

Ethiopia is a big country, in some areas very mountainous and in others flat and dry. The communication system is not good when it comes to personal transportation. The telecommunication, however, is rather good and well functioning. Ethiopia is now regionalized and each region has a great responsibility to develop their education system, including environmental education. There is a need to built up good networks for communication to be able to exchange what is going on in different parts of the country and to share good ideas and so on. The environmental problems are unquestionable very big, and environmental education is needed everywhere. A national Environmental network is a good way to operate with all kinds of environmental problems.

From Problem to Success

As stated above, there are many problems to be solved concerning the development of environmental education. Our hope, with the workshop on National Environmental Education network, is to start a meaningful and successful co-operation to solve important environmental problems within the country. If the one result of the workshop is the development of a functional network, we can talk about success.

Target Audience

The participants will be regional EE coordinators and relevant representatives for Educational mass-media Agency, Institute of Curriculum Development and Research, relevant departments at MoE and other relevant ministries, Addis Abeba University and the two Teacher Training Colleges in Ethiopia, relevant NGO's working on Adult EE. These participants are hopefully key-persons in a nation-wide net.

Resources Available

The workshop shall be realised in collaboration with the Eastern Africa Environmental Network. The costs are mainly covered by this organization, while the Environmental Education Unit (EEU) at the MoE will organize and realize the program.

Obstacles to Success

There is always a risk in arranging workshops for the purpose to initiate and develop something new. Are the participants the right persons when it comes to implementation of all ideas created in the workshop? There is a tendency that the same people attend a lot of different workshops. They become more and more educated but have difficulties when it comes to hard, practical work. We hope to reach relevant and creative participants this time. It is very important.

It is also important that we are able to follow-up the workshop and evaluate the results. Our main objective is to create a well functioning network, not only shortly after the workshop, but for a long time. The network shall also be further developed, the results of the workshop is just the beginning.

Questions to be Answered

We want to discuss all kinds of problems and possibilities related to this kind of process, we mean:

1. Preparation of the workshop
2. Realising of the workshop
3. Following up the process of implementation
4. Further training and sponsoring
5. Evaluation

Personal Learning Goals

The main goal for us will be to increase our ability to plan, realize and evaluate a development process. We also wish to increase our knowledge about materials useful to initiate and realize practical projects according environmental education.

UGANDA

Case Study by Owor Peter Minor, Program Officer, Muli-Purpose Training and Employment Association - P.O. Box 93 Iganga, Uganda c/o/ MURRAD

Environmental Degradation in Particular Soil Conservation.

Background

Multi-Purpose Training and Employment Association MTEA is based in Kigulu Country, was formed in 1986 in Iganga District, Country Uganda in East Africa. It is within the tropics with relative amount of rainfall twice a year with very big and small gazetted Forests, Parks, fresh water bodies eg. Lake Victoria, Lake Albert, and Kioga. It has got many networks of rivers to include the source of the river Nile with many mountains like Mt. Rwenzori, West, Elgon East, Moroto N.East and varying hills with a lot of natural vegetation cover. In addition has many swamps, wetlands, valley even the Western arm of the Rift Valley covers the Western frontier.

Population: Uganda's population from the 1990 population and Housing Census showed 17 million people. And in the District where the Association in which I represent has the highest population figures of 1 million inhabitants of whom the largest percentage is women.

Activity: Uganda being an agricultural country, it forms the national economy of our country. Most of the population live in rural areas with the food production primarily done by women and children, the men take up with cash crops. Most of the people are Peasant Farmers and do subsistence agriculture which in one way are resource poor.

Education: The level of illiteracy is high to about 55% of the population.

Economy: As said earlier, the economy depends on agriculture which brings in the total export revenue earning. And on this, is our major focus where the case study shall come from. "Uganda is endowed with Natural Resources, but what does it mean?" I shall tackle it as I go along.

Situational Analysis: All members will agree with me that as years go by, agricultural produce, decreases year by year yet the population doubles and many mouths to feed. But how do we go about handling this issue one wonders.

It is a real blessing that when MTEA together with a program called On-Farm Productivity Enhancement Program Winrock International conducted a needs assessment survey in Iganga District, revealed that the community are aware of some of the environmental degradation in particular the soil degradation and hence, agreed to take up soil conservation.

The major reason why the community decided to take up with soil conservation and soil fertility is because it touches on the basic human needs the prime factor of food production. As mentioned earlier, that as years go by, the amount of food produced go hand in hand with the soil conservation practises and soil fertility as a principal. From that Result Orientated Approach, the MTEA and the community within these countries, have been involved in an initial Program of Rural Intensive Agriculture Program (RIAP). The focus was on increased nutritious food production for consumption and the surplus was for sale to increase on their income.

Statement of the "Problem" or "Success":

In 1992 December, it is the usual time when the general Assembly of my organization meet and do come up with an Action Plan for Implementation. In that Action Plan, they developed a three-year strategy from 1993-96. The problem in question was to increase food production, soil conservation and soil fertility restoration, seed activities, agronomical principals and general farming management.

In the same (a related) Program from Winrock International in cooperation with Agricultural Development International and CAAs Project Uganda collaborated with MTEA to implement a program.

When scrutinized, it much wholesale into MTEA Action Plan and the Program is called On-Farm Productivity Enhancement Program OFPEP which it's strategy is to address on increased food production, soil conservation, and soil fertility, agronomical principles, seed activities and general farming management.

OFPEP - MTEA:

Took off with establishment of demonstration plots as a classroom which was done through farmer participation right from site identification, land preparation, marking various treatments, agronomical principals and planting then monitoring the performance up to harvesting, evaluation of results, comparisons and data analysis taken. The farmers, having learnt the technologies voluntarily go and practise it into their gardens with improved seeds, hence, become adopters.

So far from the demonstration results, it showed that the problem can be addressed using these OFPEP technologies. The various technologies taught are: use of animal manure, green manure, Rhizobia, Alley cropping and compost manure. Applied on Nam1: Soybeans, Beans, Longe 1 Sorghum Serudo and Kabalira bean mcm 5001. The farmers who have been trained and adopted the various technologies in their gardens are 6,700 people of whom 3,260 are women. Many acreages within the project area are planted in lines with agronomical principals taken into consideration, 15 demonstration plots have been nucleated in the district, and the multiplier effect is spreading like fire.

Target Audience: Are rural women, children and some men. Age are adults, economics pleasant farmers who are resource poor, illiteracy percentage is relatively high.

Current Resources Available: Land, the participants, manure and Rhizobia, trainers and trainees and program funders.

Obstacles to success:
- Lack of transport to reach each target group
- Lack of credit facility to increase on acreage, purchase inputs and seeds: trained personnel, teaching equipment and materials
- Lack of market of the produce when in surplus
- How do we ensure continuity
- Lack of storage facility and changing weather patterns
- Lack of funds to translate the OFPEP into the local dialects
- Lack of finance for the project costs
- Lack of labour when needed and awareness creation to other target districts.

Questions: How do we go about in getting the needed items as mentioned in Question 8.

Learning Goals: Awareness creation to members of the community to appreciate the project, and clear problems it's going to address ie. should be involved in every stage of project development.
- Once people are aware and educated to see the need and learn to appreciate the problem can come up with an ever lasting solution to the problem better than an outsider.
- Learn by doing creates confidence building and promotes active participation and in the end they say we have done it ourselves hence strong ownership theory, hence, increased food production, soil amendments practises all lead to increased income and better living standards.

URUGUAY

Case study by Graciela Evia and Eduardo Gudynas, Researcher, Latin American Centre of Social Ecology, P.O. Box 13000, 11700 Montevideo, Uruguay, (Popular Education and Ecology Network-CEAAL)

Environmental Management Needs Politics: Looking for Public Discussions

Introduction

Uruguay is a South American country, that faces may environmental problems (soil erosion, water pollution, wildlife extinction, reduction of natural areas). These problems resulted mostly from the lack of sound environmental conservation policies. Many Uruguayans are disenchanted with this situation, and are demanding solutions.

Unfortunately, the proposals regarding this matter are mostly related to market mechanisms (taxes, privatization), which are based on the philosophy that conserving the environment is only important if it leads to economic growth. These "free market" environmental policies do not address the problems at their roots, and the ecological crisis remains unsolved.

The present policies restrict political discussions. Environmental problems and others are not discussed by the people at large but by a set of technicians. As a result, democratic participation is weakened, and the possibility to develop alternatives to environmental management is reduced.

The environmental and other social movements are trapped on this context, and paradoxically contribute to the disenchantment with the political arena each time they criticize governments. But at the same time, many environmentalists, worried about the political erosion and the consequent weakening of democracy, are trying to re-create that political arena.

With this concern, CLAES has been researching how to implement alternative environmental politics, plural and democratic. The goal is to articulate concrete proposals which consider the environment as dimension that runs through political, economic and cultural dimensions.

We have held formative workshops with community leaders to discuss and evaluate the understanding of these problems. Through these activities, people are able to enhance their capabilities on exercising their citizenship, and therefore help in the strengthening of democratic tools and realms.

In this article, we will share some of the thoughts that emerged from our work in this field.

The Problems We Faced

Environmental management is always linked with environmental politics. Although this is usually minimized and/or forgotten, it is very important to consider this dimension. It is not possible to develop a good environmental management with a questioned national democratic base and a weakened political process.

Under this critical situation, we consider important to study deeply the causes and consequences of this political situation. Also, of importance is to begin actions to make alternative proposals known to strengthen democratic environmental politics.

The following are some of the problems we face:

1. Collective discussion is eroded, and democracy is weakened. Environmental policies are not being discussed and analyzed by the different political actors.

2. Public realms are privatized. Knowledge and approaches towards environment are considered exclusively from "free market" mechanisms.

3. The technical framework and organization of the environmental movement is criticized. Environmental organizations are criticized on their lack or little use of scientific information.

4. Ethical consideration on these policies are minimized.

The Experience Developed

We conceive that adult environmental education has important ecological objectives, but also social ones. In this case, related to the strengthening of a public and open arena to collectively built environmental policies.

As an example, we will discuss one of the workshops we held in Montevideo in 1994. People from social movements, particularly urban community leaders, local government councillors, and NGO's technicians, met together to face these issues. The objective was also to exchange ideas about present environmental policies in Uruguay, and to discuss their objectives.

Taking into account the excellent results of the use of group dynamics in formative workshops, we organized a role playing exercise. It consisted of undertaking an environmental problem considering all its diverse aspects, through a dramatization of a public hearing. The public hearing process is included in the Uruguayan Environmental Impact Assessment Law (EIA).

The hypothetical problem concerned an industry that was protected by the government, because of its economical productivity and its employment which support may families. The effluent of the industry contaminated a local river that flowed the neighbourhood. As a result, there were many diseases among the inhabitants, and the community demanded an EIA in an attempt to stop the contamination.

In a first moment, we divided the group representing the different political actors into: (a) community groups, (b) enterprisers, (c) syndicalists, and (d) representatives of the government. each group received different specific information about the problem described. They then had to prepare arguments to defend their position, and were able to conduct the negotiations they consider relevant with the other groups.

In a second moment, the public hearing started, coordinated by a lawyer that play the role of representing the Ministry of Environment, following the legal procedures which are applied in real situations. Each group had to represent its case, and the floor was open to public discussion. The government representative evaluate evidences and arguments and then presented a verdict. the role playing finished at this moment.

After that, in a third moment, the evaluation of the activity stated discussing several issues. One, was related to how the process of the public hearing was developed. Others were focused in the skill of arguing, and how negotiations with other sectors were conducted. We also shared ideas on positive and negative actions in each group depending on the objective they wanted to achieve. For example, the objective of the enterprisers was to continue to earn money with their contaminating industry; and the one of the community was to achieve a better quality of life in their neighbourhood.

The results that we observed included:

1. All the participants reacted only to the local problem (the "symptom"), but did not pay attention to the other related aspects (the "roots") that were behind them (eg. industrial policies, economical protection, etc.). Since this was not realized, any solutions to this problem will not address the actual situation. Therefore, the problem will probably arise again in this neighbourhood or in another. That is why we concluded that environmental problems should be analyzed both in their consequences, and causes. Problems will not be

solved through the creation of a Ministry or by including a touch of "green" in each productive sector. The emphasis should be transectorial.

2. The groups did only bilateral negotiations, although their instructions allowed a wider dialogue. There were difficulties with openly discussing ideas and exchanging needed information. We realized that the lack of trust for what is seen as "different," impeded each participant to think in "general interests" and in environmental effects of this democratic disability.

3. The community group did not present convincing arguments in defense of the environment. They did not administrate their time to prepare their position well, and they could not come to an agreement on what to emphasize. At the same time, they asked for solutions from the government, but they did not know how to use it well.

It was clear from our exercise that environmental management will be based on a new citizenship that will confront consumer attitudes, and that lies on strong capabilities for dialogue and collective actions. This means not to think only in personal interests, with immediate goals, and exclusively for profit.

This new citizenship will also allow the collaboration of all political participants towards the rebuilding of politics.

The Challenges

We need to be creative to recreate the trust for political solutions, and strengthen democracy. In Uruguay, it is rare to have politicians, technicians and grassroots representatives sit together at the same table to exchange ideas. Arguing that communication between them is difficult because of different "languages" and "thoughts," politicians or technicians avoid meeting with community groups. Consequently, environmental politics stay in the hands of powerful groups that decide for all. Citizens are rarely invited to these discussions, and often not even informed of decisions made.

We should try to recover the vision of the people to rebuild and strengthen dialogue. By linking the different political actors in a common arena, all points of view will be heard and respected. Adult environmental education processes appear as one framework to these reunions. It can open the path to educate people in democratic procedures towards a better environmental management.

We still need an open debate on what we understand "environmental politics" to be, and to think about their contents and objectives, strategies and tactics. We still do not know how to address values in nature, and how to link these with social justice to avoid totalitarian proposals in the management of the environment.

To rebuild a new citizenship, will also need new political realms and new environmental thoughts. They are essential to elaborate alternative conservation proposals.

Personal Learning Goals

We realize the importance of communication among different political actors to achieve a better understanding of environmental problems and, then, of better environmental management. But, also, to understand that this process is basically a political discussion, although different in its nature to the traditional realm.

Net working with other actors from other countries and realities, will help us in the understanding of our current environmental crisis. we hope that through he exchange of our experiences, obstacles and successes, we will learn more about how to think and act both locally and globally.

CANADA

A Case Study by Anne Camozzi, EcoLogic, PO Box 1514 Antigonish NS B2G 2L8 Canada

Workplace Environmental Education

There is an urgent need for environmental education programs for industry, particularly primary resource-based industry where workers have a direct impact on the environment. To change society's environmental values and actions we must reach wider audiences. The industrial sector, especially primary resource-based industry, is a target we have often failed to reach.

Two areas of importance in programming are the need for relevance in programming and the mandate to provide a needed service or educational opportunity to the local community. The change of attitude in industry towards the environment opens a door for educators because of the relevancy of environmental programming and the impact that this programming could have in their local or regional area.

Educators with a background in adult education and learning have special skills that can be applied successfully to work in partnership with industry to satisfy the growing need for environmental awareness and training programs. The learner-centred approach of adult education is particularly appropriate in adult environmental education.

Many professional associations have now put policies in place that require environmental programming for employees. In order to complete all the training and awareness programming that will be required over the next decade, industry will require help from skilled educators. However these educators must be aware that there are basic ingredients that are critical for the success of any co-operative venture with industry.

Criteria for success

Of course, the first and most important step in the success of a program is the willingness of the industry to become involved in environmental education. Once this first step has been accomplished, educators have to gain management trust, design an honest and relevant curriculum, ensure employee input in the learning process, and conduct a meaningful evaluation.

Trust

There are several important building blocks in the development of trust between management and the educator. First, educators must be able to participate in constructive dialogue based on a sensitivity to the constraints and practical problems faced by the industry. Knowledge of technological and economic realities is crucial. It will help educators immensely if they already have a "track record", so they can point to other endeavors where they have worked successfully with industry. Too often in environmental areas we come to industry with criticisms that may be based on misperception and lack of knowledge of the industry. This is not to say that industry partnerships require a sacrifice in principles. It's important to deal honestly with the company in terms of clearly communicating personal feelings, beliefs, and knowledge limitations. If this is done in a business-like, non-confrontational way, the explicitness is appreciated.

Second, educators must show enthusiasm and knowledge about environmental matters. Many adult educators are lacking skills in the environmental content area, while environmental specialists may be lacking skills in the educational field. This presents ideal opportunities for interdisciplinary and teamwork approaches. resource people and materials as content specialists. If educators approach industry with recognized "outside" experts, it will lend third party credibility to the program. Industry is looking for credible, objective, and knowledgeable resources.

Third, educators must negotiate and work with industry as adult educators and not as environmental missionaries. Although change in environmental practices and behaviour may be our goal it is important to deal with industry on the basis of "how" this is to be accomplished, not "why" it's important. I believe industry is aware that it needs to change; what it is lacking are practical and implementable ideas on how this can be accomplished. The concept of partnership is an important one and one which implies a basic premise of cooperation and non-confrontation.

Fourth, educators must be willing to design programming grounded in the everyday realities of running a business. The language of adult education is a language of goals and evaluation; it is a language that industry can understand and relate to and it is a language we should be speaking and practicing.

Relevance and honesty

Two cornerstones of adult education are understanding the learners and making the program relevant to their needs and interests. Relevant programming is honest programming. Adults are quick to react with cynicism or indifference if they sense irrelevance. Environmental programming has built-in relevance because of the high level of interest in this content area. However, the environment is a subject with many different content areas. In industry programs there is an heightened need for relevance because of the practical applications of knowledge that are required to change environmental practices. Because of the heightened level of interest in the environment, often we are scrambling to build an environmental program while forgetting one of the fundamental principles of our profession --- to design programs based on need.

Employee Input

To design a program the first step is to convince the company of the usefulness of a comprehensive needs assessment for both employees and management. The turning point is usually the issue of relevance and the perceived long-term benefit. Needs assessments which gauge specific learning needs and the criteria for successful programming are critical. Usually both employees and management demonstrate enthusiasm and appreciation at being solicited for their views and much goodwill was generated before the program had even been designed.

One of the concerns of adult education is learner participation. If you establish this climate in the needs assessment you must follow through with a participatory program design. Workplace environmental education programs should be interactive, highly participatory, designed at relevant literacy levels, fun, and engage the learner in problem-solving and critical thinking.

Conducting a meaningful evaluation

The final challenge is to design an appropriate evaluation procedure and follow-up. Qualitative surveys through post-workshop reaction forms work well to evaluate how well the program met objectives and to rate facilities, course design and delivery. Quantitative attitude surveys can test their attitudes environmental responsibility and give statistical analyzes of success. Generally speaking quantitative approaches take more time and money. The program must be designed with a follow-up procedure.

Summary

Workplace environmental education is critical and needed throughout the world. There is a particular need in the North where over-consumption is a major contributing factor to world-wide environmental problems. Workplace programs should be directed towards environmental stewardship and citizenship and can be validated by their contribution to the total quality of the company which will also lead to a competitive edge. Improved environmental performance in the policies and products of industries should be given a high priority. Properly designed education programs is the way this can be done.

ARGENTINA

This case study has been taken from Connect, Volume XIX, #3.

Pilot Project for Secondary-School Teachers and Supervisors in Education and Information on Environment and Population for Human Development (Argentina)

In cooperation with the Department of Education of the Buenos Aires municipality, the Argentinian National Commission for UNESCO and the Fundación Educambiente, the UNESCO-UNEP International Environmental Education Programme (IEEP) has launched a Pilot Project on Education and Information on Environment and Population for Human Development.

The main purpose of the project is to strengthen the interdisciplinary capacity of secondary-school teachers and supervisors of the Argentinian national educational system in treating and incorporating, in an integrated manner, population, environment and development issues in curricular objectives, contents and methods, in order to improve the environment and the quality of life.

The project will be carried out in 6 schools located in districts with different socio-economic-environmental characteristics. 30 teachers from various disciplines, 4 supervisors and 6 directors - as well as the pupils - will participate in it.

Two manuals will be prepared: one for the teachers and supervisors on the methodology and the other for students on the subject matter.

The project includes a series of training workshops for the teachers and supervisors to enable them to conduct this project in their respective schools for a duration of six months. The project will then be evaluated, with special attention to the methodology and the results obtained - as regards both students as well as teachers and supervisors.

The conclusions will be integrated in a final report which will be published in 1995.

CAMEROON

This case study has been taken from Connect, Vol XIX, # 3, September 1994

An Experimental Project for Decision-Makers, Industrialists and the Population: Awareness-Raising on the Impact of Waste Products on the Environment, Population and Development

The Confederation of the Central African NGOs for Environment and Development (CONGAC), in co-operation with the Cameroonian National Commission for UNESCO and the UNESCO-UNEP International Environmental Education Programme (IEEP), has developed an experimental project meant to raise awareness of decision-makers at the local and national levels to problems related to the industrial impact on the environment, population and development.

For this purpose, a three-day national training workshop has been organized in Douala from 26-28 October 1994, aimed specifically at policy-makers, ministries, councils and workers' syndicates as well as the population. 65 participants, including industrialists, opinion leaders as well as 2 representatives from each province, have been foreseen for the workshop which will consist of presentations, working groups and a televised roundtable conference.

The objective of the project is to focus the attention of policy-makers, industrialists and the population on the management of waste products; to awaken interest in investment in recycling waste products and to demonstrate the impact of non-treated waste products on human health. The workshop is expected to create an awareness of the impacts of inappropriate decision-making upon the environment, population and development; to develop criteria for appropriate interaction between decision-makers, experts and users; and to emphasize pertinent approaches for effective problem-solving at local and national levels.

A public awareness campaign, followed by an integral community improvement activity in a specific area with the direct intervention and support of the participating decision-makers through their organizations/institutions, will be an important outcome of the workshop.

A report of the workshop with the proceedings and results is foreseen by the beginning of 1995.

BRAZIL

This case study has been taken from Connect, Vol XIX, # 3, September 1994
A report of these activities can be obtained by writing to: Connect, Published by UNESCO, Environmental Education Unit, 7, place de Fontenoy, 75352 Paris 07 SP, France or Prof. Walkiria Barbosa, Centro Cultural Rio-Cine, Rua Frei Leandro, 35 - Lagoa, 22470-210 Rio de Janeiro - RJ, Brazil, Tel: (55) (21) 246.4792, Fax: (55) (21) 286.1191.

Development of Activities on a Specific Theme - Water - Focusing on Environment, Population and Development Issues (Brazil)

In co-operation with the Basic Infrastructure Programme - Sanitation of Fortaleza (SANEAR) of the State Government of Ceará, and the UNESCO-UNEP International Environmental Education Programme (IEEP), the Centro Cultural Rio-Cine developed an EE programme: The Nature of the Landscape in 100 public schools of the municipality of Rio de Janeiro and 30 of the state administration.

In the context of this programme, and in view of the problem posed by cholera, activities related to the theme `water' were developed by the Centro Cultural Rio-Cine including two national training workshops for high school teachers and community leaders and two educational kits, one for formal and one for non-formal education. A public information, awareness and participation campaign on problem prevention and solving was also carried out.

Forty-five teachers from 15 schools attended the two workshops which consisted of plenary sessions, working groups and round tables. Didactic material including folders, posters, leaflets, books, educational games as well as videos were prepared on the theme of `water' and distributed to schools, communities and churches. Radio and T.V. spots were also diffused as well as general and legislative information booklets prepared and distributed to all target populations.

LESOTHO

This case study has been taken from Connect, Vol XIX, # 3, September 1994. For more information contact: Gisela Prasad/Matseliso Mapetla/Hopolang Phororo, Institute of Southern African Studies, National University of Lesotho, P.O. Roma 180, Lesotho.

Environmental Action Programme for Rural Women
Edible Wild Plants in Lesotho: An Important Source of Nutrition (Lesotho)

This study was carried out by the Institute of Southern African Studies of the National University of Lesotho, with the support of the Lesotho National Commission for UNESCO, the Ministry of Education of Lesotho and UNESCO.

The rationale behind this initiative was the fact that the use of edible wild plants - which have traditionally played a valuable role in rural areas of Lesotho - is fast declining. In view of uncertain weather conditions, poverty and the chronic malnutrition that a great number of young children suffer from, it was felt that better exploitation of these plants would not only provide nutritional improvement, but also effectively help in preserving the environment as wild plants are naturally more resistant to climate fluctuations. The role of women, in this context, was fundamental as it is they who traditionally collect, prepare, store and market the plants.

The overall objectives of the study were thus to:

- Sensitize rural women to environmental degradation by making them aware of their own possible contribution to it
- Get their point of view of environmental problems, work out an environmental action programme and implement the plan
- Raise the question of sustainability of environmental improvements by passing the knowledge gained to other members of the community

Because of this initiative:
- an inventory of edible wild plants used in Lesotho was made and data collected on them
- awareness of the contribution made by edible wild plants to food security and nutrition was increased
- women received encouragement to find commercial outlets for wild food
- various ideas were implemented in order to improve the status of wild foods
- women were made more aware of the deteriorating environment and how it affects them.

SOUTH AFRICA

Case Study by David Lengwati, South African Association for Literacy and Adult Education, P.O. Box 556,Siyabuswa 0472 South Africa

Background

The UMTAPO Information Centre through research work resulted to the formation of South African Association for Literacy and Adult Education as an independent organization promoting adult education throughout South Africa.

The emergence of SAALAE centred itself mostly to the underprivileged country population especially on conditions of colour-bar. Therefore, the organization's operational place concentrated on rural areas previously called different national homelands. These so-called homeland areas formed under places which are poor in water supply, barren soils, overgrazed veld, humid, hot areas with poor rainfall, rocky and mountainous terrain and sandy soils susceptible to soil erosion. The population staying in those areas was from nearby white farmers land and is very poor, owning livestock and few farming property of old farming systems.

SAALAE observed the population standard of development and decided to open a literacy centre allows and with the background of poor families, it introduced the style of concentrating in classes for a contained period, thereafter learners do income generating handiwork. Therefore, classes conducted under SAALAE also promote self-help projects and these projects demanded facilitators or educators, but through organization poor financial position, therefore such was done on voluntary manner by any member of SAALAE. The area I'm responsible for development incidents like this happened.

1. Establishment of Fisheries Dam used also for Human Consumption Water.

1.1 The idea of such water dam construction was sold to Tribal Authority offices for support and recommendation.
1.2 The community villages to be shifted or force removed for such dam construction were notified and their graves established somewhere far from that place.
1.3 After community villages removed for new settlement, then other villages realized that their grazing camps were affected by such a deed.
1.4 The villages reported the matter to their local Tribal Authority offices as a problem due to the facts that:
1.4.1 The Department of Agriculture and Environmental Affairs issued notices that livestock

farmers in the area should decrease their stock.

1.4.2 The Nature Conservation Division is going to put wild animals inside fence camp that water dam.

1.4.3 No one is allowed to send his livestock for drinking in that water dam.

1.5 The area local residents organization took the matter further to the Department of Agriculture Minister for deliberations.

1.6 The Minister of Agriculture through consulting Division Nature Conservation and the Legislation Assembly - they formulated new conditions for managing the area.

1.6.1 The Livestock Committee were given signed documents to produce when putting their livestock in nature conservation camps.

1.6.2 The farmers domestic animals will graze together with Nature Conservation wild animals.

1.6.3 The families affected by firewood shortage, the Department of Forestry will help them establish forestry plantation for firewood supply .

1.6.4 All villages affected by the establishment of water dam, individuals will have a right to apply for a fishing permit and fish in that dam as is a community benefiting project.

1.7 The Division of Nature Conservation experienced problems like opening gates, cutting of fence wire, transmitting of wildlife diseases to domestic animals and illegal taking of firewood in conservation camps.

1.8 The area community as introduced to new development conditions felt deprived owning livestock in the area felt benefitting nothing with wildlife, they felt nature is for abrupt use than controlled and also felt depressed not to use nature as they like.

1.9 The area taught us that Adult Environmental Education has a main role to play in changing illiterate and rural grown community members, even leaders of community are unable to defend effective.

Establishment of Nature Conservation Camps in Villages with Livestock Grazing Camps

2.1 Most community villages were established through allocation of residential site to families force removed from farm owners land.

2.2 These families own pigs, cattle, fowls and few old used farming equipments.

2.3 The expectation of these families is to continue with small-scale farming and cattle ranching.

2.4 The Department of Internal Affairs was responsible for residential site planning and allocation to individuals needing such site and their community villages planning provided livestock grazing camps.

2.5 After community was settled in different villages then different government departments started with their development programmes.

2.6 Those development programmes created opportunities for specialized types of community services, which demanded a vast change to what has been done by previous planning and surveyors.

2.7 These specialized services evaluated certain areas suitable for wildlife conserving, residential plots, grazing camps, industrialized development and for agricultural farming.

2.8 The community development technical groups after their planning and surveyed areas, their results were sent to Cabinet for approval and implementation.

2.9 Planning and survey results declared certain community villages falling under Nature Conservation Camps, mining and agricultural land.

2.10 The Cabinet approved such areas for construction and development while grassroots community is not consulted and reached consensus.

2.11 In villages like Bundu Inn and Bockenhouthock village dwellers resolve to stop any construction of nature conservation shortening/minimizing their livestock grazing camps.

2.12 The villages main concern relate like this:

2.12.1 Livestock farming is their source of income as rural areas has no industrial areas and their children are unemployed then with little livestock they have, children can go to school and families receive income.

2.12.2 Wildlife game belongs to Government and income secured, there is for the Government expenditure therefore, for them to generate income it need them to have domestic animals.

2.12.3 Wildlife animals cannot be used for ceremonies like burial of family member, wedding of a wife, healing for ancestors, paying labolla and bush school graduation ceremonies. The community felt pushed toward leaving their traditionally beliefs.

2.12.4 The Government is interested in wildlife game while they knew well that community villages were established with people from farm owners and only work they knew is farming.

2.13 The Division Nature Conservation when putting fence poles, the next day they are removed.

2.14 Therefore, the matter is still under investigation and new Minister of Environmental Affairs and Tourism try to solve it with little success.

2.15 This matter shows lack of consultation and lack of adult environmental education therefore, areas like that are our target areas for education.

2.16 The issue of importance is to formulate education programs especially from NGOs.

2.17 But this matter firstly was debated that cattle and goats will graze with wild animals in the same camps.

2.18 The response from community was that grazing camps within wildlife game camps should be separated to where game is aside and domestic animals aside.

2.19 The Government Department agreed to proceed like that, but at a long discussion separately, they foresee problems and difficulties therefore, everything is hanged.

CANADA

A Case Study by Darlene Clover,North American Alliance for Popular and Adult Education, 203 Concrod Ave., Toronto, Ontario, Canada

Networking in North America

Background

This is a brief case study because our work is just beginning. One of the difficulties vis-a-vis environmental education that faces us in Canada is the lack of knowledge about and therefore, inability of some environmental activists to use educative practices and processes that are creative, stimulating and demand participation from their audience (some do however, it is not yet enough). In addition, many popular educators around North America are not making the connections between environmental issues and their own work in different streams of social change education.

The North American Alliance for Adult and Popular Education

In August 1994, the North American Alliance for Adult and Popular Education (NAAPAE) hosted its first General Assembly in Alberta, Canada. One of the key components of the assembly was to invite local environmental activists to participate in the event with us in order to learn about the types of issues facing people in the province of Alberta and share our own experiences with them. This was to be a learning and sharing process for all participants.

I as coordinator of the Environmental Popular Education network of NAAPAE, was unfortunately the second person to contact the activists. The issue on which they were focused was rampant government/corporate clearcutting of old-growth Boreal forests. Despite numerous efforts through telephone calls and information on popular education and the conference, it was impossible to change the minds of these people that education was most valid and would be most respected if it consisted of experts delivering knowledge to those who knew nothing. Needless to say, this top-down, educative process did not work.

Attempts were made to work with them to develop a more participatory and inclusive approach. Suggestions included breaking-up into small groups and going with an activist into the forest to really see and feel a Boreal forest and have more space to ask questions and share our own experiences. The lodge where we were staying had agreed to provide us with a green-bag lunch of re-usable plastic plates, cups, etc. which would be left in the forest.

Once participants realized that the session was to be a lecture style approach, many did not even attend. Others left after the first speaker. Out of 170 participants only 25 came to this event and obviously fewer remained to the end. Needless to say the presenters felt hurt and it was uncomfortable to explain what had occurred although I have attempted to do so in letters to each one since.

One suggestions that the group did finally agree to, as an additional activity, was to invite some women activists and a community indigenous elder to take people into the forest at sunset for song, dance, music and a spiritual communion with nature. Approximately 145 people attended this event was some of the comments from participants. The evening before we had all participated in song and a smudging ceremony inside the lodge. This was referred to as a "cultural event." Once people were taking outside into the woods for song, music, dance and a brief smudging ceremony, it was referred to as "voodoo" and "conjuring in the woods." It speaks both to the power of nature as well as the complete dis-association and perhaps fear of people to nature.

In addition, many of the popular educators of NAAPAE working in other sectors failed to see any links between jobs/work environments and the natural world, environmental oppression and its links to racism, etc., through the Seeds of Fire newsletter and popular education workshops with members of NAAPAE. The second is to work with environmental activists around Canada to introduce popular education process, methodologies, materials and techniques to them so that they may be able to better engage their audience around these very crucial issues. The third is to network with other adult educators working on environmental issues around Canada to learn from their particular educative practices and share our own.

CHAD

A case study taken From the Tribune, a Women and Development Quarterly, Women, Environment and Development, Part II, 1993.)

Environmental Education for Women Farmers

An environmental project in a Northern Chad village coordinated by CARE International, is introducing women farmers to improved agro-forestry techniques that stress links between farmers' economic survival and the environment. More than 80 percent of some women's income in this part of Chad depends on the Doum palm, from which they weave mats and baskets from the fronds for sale at the local markets. These palms are located in millet fields and are often cut down. Because of the project's environmental awareness programmes, the women have become conscious of the need to coordinate with the men so that this resource is not lost.

A number of measures have been incorporated into the project to make it easier for women to participate. Environmental education sessions are held at night when women have more free time. More than a third of the people who plant trees in the project are women. Funding has been secured from the European Economic Community to broaden the environmental education project so that it involves curriculum development, school nurseries and other environmental activities for primary school children. The project will also work in communities surrounding these schools

BOTSAWANA

Taken from Success Stories, Global Assembly of Women and the Environment.

Sustainable Agriculture Can be Good Business -Thusano Lefatsheng is a small NGO that was set up in Botswana in 1984 to raise awareness of the uses of indigenous food and medicinal plants. A research farm was established to purchase, process and market indigenous products, particularly the Kalahari Devil's Claw, a plant well-known for its medicinal value. The farm also tests farming methods that are not harmful to the environment. In addition, Thusano Lefatsheng develops, processes and promotes other indigenous products as new cash crops. The group has also developed a profitable and sustainable farming system where traditional crops, new crops, medicinal plants, trees and livestock are integrated to become a stable ecological system.

As of 1989, about 1500 people were involved as harvesters and processors in Thusano Lefatsheng's project. Most are women. A study has shown this project to be one of the most profitable agricultural enterprises in Botswana, with products selling well in Botswana and overseas.

BOLIVIA AND INDIA

Case study from The Tribune, a Women and Development Quarterly, Women, Environment and Development, Part II, 1993.)

Using Media to Promote Environmental Awareness

Environmental groups around the world are using songs, theatre, film and other media to stimulate awareness of environmental issues. The YWCA of Bolivia used people's love of popular music to raise awareness and earn income for environmental efforts. They contacted a popular musical group and asked them to write a number of environmental songs and record them. Then they organized concerts at which the group sang and sold the album. Proceeds from the sales will be used for future environmental projects in that country.

In India, a media production group, Abhivyakti, initiated a project with a rural development organization to design and produce media materials about forestry. Materials included a video showing the impact of deforestation on people, with stories narrated by women and songs about fetching drinking water, fuelwood and the effect of the fuelwood crisis on women.

After seeing the video, the women demanded a separate viewing for women only to talk about the hardships of collecting fuelwood and the humiliation they felt when encountering forest guards.

NETHERLANDS

This case study has been taken from Pachamama, Number 1, 1994. For more information contact Eric Canjels, LCO - Zwolle, P.O. Box 1004, 8001 BA Zwolle, The Netherlands, Tel: (38) 232112, Fax: (38) 230714.

The Environmental Participation project aims at promoting initiatives at the neighbourhood level to improve the living environment. That is, enhancing the "livability" of an area as well as contributing to sustainability of life. The project hopes to make a connection between "livability", on a small scale and short-term, and sustainability on global level.

The project is made of three parts:

- Initiatives are taken by neighbourhood committees, local government, community workers and residents in six test locations. The initiatives include energy saving, waste reduction and separation
- A nation-wide inventory of initiatives is collected
- Based on the results of parts one and two action will be taken to stimulate projects outside the six test locations

The information will be disseminated via booklets, seminars, meetings etc. Eventually a national network on environmental projects in neighbourhoods will be initiated.

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ITALY

This case study has been taken from Pachamama, Number 1, 1994 .For information contact Franca Gauini, Daniela Salvadori, IRRSAE Toscana, Via C. Lombroso 6/15, 50134 Firenze Italy.

IRRSAE Toscana (Institute of Educational Research in Italy) and the University of Florence have devised a methodology for environmental education to be used in schools. The creators of the project believe it can be applied to adult education situations.

The project is divided into four stages. During the preliminary or preparation stage, educators identify the field (or object) of enquiry, draft a schedule, the instruments and the teaching materials for the students. The object of enquiry may be in either the physical or natural (i.e. a forest; park; body of water) or in the social, cultural or man-made environment (i.e. city street; village square). Special attention is paid to ensure the object is linked to the students' experience and is important to them. Next is the observation stage in which direct contact is made with the object of enquiry. Students become aware of their relationship to the environment. In this stage the teacher does not offer any explanation, and students are left to observe guided by the instruction sheets provided.

The third stage involves analysis and research. The students' observations are gathered and analyzed. Making comparisons and drawing conclusions, the students finally reach hypotheses which they will have to verify through research, meetings with experts, conducting interviews:..etc.

Finally, the students connect the experiences they have acquired at the observation stage to theoretical information. They are also able, at this synthesis stage, to transfer what they have learned to other realities, and use the knowledge to solve problems.

HUNGARY

Environmental Protection

This case study has been taken from Pachamama, Number 1, 1994

The Budapest Studio of the Society for Dissemination of Scientific Knowledge, launched a programme in October 1993, supported by local ministries and the Budapest Office of the German Adult Education Organization (DVV), to train environmentalists to protect and rehabilitate the environment. Participants in the programme are from local government, private enterprise, media, educational institutions and NGOs. The curriculum was designed using the experiences of the Strasbourg Institute of EC and other international programmes. It includes water and waste management and the economic, political, social and legal aspects of environmental protection.

For information write to DVV Budapest iroda, Bródy S.U.16. H-1088, Budapest, Hungary.

SRI LANKA

Summarized from an article in Connect: UNESCO-UNEP Environmental Education Newsletter. UNESCO: Paris, France, XV (2), pp. 1-4. 1990.

"A clean and beautiful environment" was listed by members of Sri Lanka's Sarvodaya Shramadana movement as the first of ten basic human needs. The others: a clean and adequate supply of water; simple clothing; food; health care; communications; simple housing; energy requirements; total education; spiritual and cultural needs.

Besides "basic human needs," the Sri Lanka popular movement eloquently, but with remarkable simplicity, instructs us by its example as to what can be meant by "basic environmental education." A village self-help activity, the Sarvodaya Shramadana movement began among the nation's poorest people. In one year it built eight times as much roadway as the government, at one-eighteenth the cost, while it was also building schools and houses and irrigation canals. Here is a glimpse of how it was sone:

A village joins the movement by inviting a team of Sarvodaya organizers to visit (there are over 27,000 full-time organizers). A meeting is called in the temple, church or mosque, and the people talk about what the village most needs. Then the planning begins, with everyone participating.

"You say you have waited two years for the government to clean that canal? you can keep on waiting while your fields bake. But where is your own power? Your power is not in Colombo (capital of Sri Lanka), it is in your heads and hands."

"How can we clean the canal? We have tools but no pans to carry away earth. Is there a substitute for pans? Yes, we can use sheaves of leaves. How many people to do the job? two hundred, working four days. How many volunteers - can each one bring one other? Right, who will feed them?" A landowner volunteers to supply food. The canal is finished, not in four days but in the afternoon of the first day, and the people are ready to take on the next job.

Through "basic environmental education" like that, in many parts of the world forests are being planted, checkdams erected to prevent erosion, clean water systems created, enterprises started, all with little money and few resources except the crucial resource of organized, empowered, learning-while-doing people.

HONG KONG

A case study by Gordon Ng,Hong Kong Environment Centres,S301, Lai Mai House, Lai Kok Estates, Kowloon, Hong Kong

Background

Surveys show that people in Hong Kong are poor in taking appropriate actions even when they know the environmental problems. Many educational programmes in Hong Kong suffer from a lack of funding for long-term and systematic coverage of environmental issues. Participants in existing programmes learn scarcely enough about the environment. Most of the educational programmes only cover the superficial aspects of environmental problems.

Environmental Pioneer Scheme

The programme objectives were to raise environmental awareness of the participants and to encourage participants to take actions. The programme consists of two modules (learning and action modules). In the learning module, the participants are required to attend three lectures (on global and local environmental problems), take part in 2 workshops (how to organize programme and daily life environmental actions), undertake 1 field study of self-initiated topics, and join at least 1 visit organized by the centre (to recycling factories or nature reserves).

In the action module, participants are required to take designated actions, either at home, in the workplace or projects initiated by themselves or orgainzed by the Hong Kong Environmental Centre as well as other environmental groups. Actions taken at home or in their workplace include energy audit (e.g. participants need to demonstrate successful energy conservation by showing their energy bill), waste recycling (participants need to demonstrate by showing receipts of sending recyclables to waste dealers etc. Projects initiated include community environmental services (park cleaning, tree planting, nature reserve maintenance) education projects (school programme public exhibition), publication projects (magazines, information handbooks).

Participants fulfilling the required work in the learning module and action modules are awarded the title of "Environmental Pioneer". Many of them are recruited a s members or volunteers in the Conservancy Association which is the mother organization of the Hong KongEnvironment Centre. In this way, they are further involved in the environmental campaign and could constantly receive information from the Association or the Centre, leading to the further upgrading of their environmental awareness.

The target audience is 130 participants between the ages 18 and 25. Current resources available includes cash sponsorship from a private company, and participants contributions. The project was supervised by thee executive secretary and coordinated by the project coordinator assisted by a project assistant. There were volunteer consisting 6 core members, 12 volunteer team leaders and lecturers and advisors.

Obstacles to Success

Managing 130 participants was a difficult task. In the end, not all of the participants survived the whole programme and only 80 graduated. There was insufficient information, particularly the most updated environmental news and situation, since the environmental conditions have been changing rapidly in the last few years.

Personal learning goals include learning about education methods and approaches in adult environmental education and networking.

These materials have been prepared for use in workshops as background materials.

BACKGROUND OF ENVIRONMENTAL EDUCATION- HISTORY AND DEFINITION

This summary is condensed from an article in Connect: Changing Minds - Earthwise. UNESCO Paris, France pp. 9-13. Editor, Joseph Barry. Some sections have been reproduced in their entirety. (UNESCO encourages the reproduction of articles in the CONNECT series)

The Stockholm Conference on the Human Environment (1972)
This conference called for the development of environmental education as one of the most critical elements of an all-out attack on the world's environmental crisis. This new environmental education must be broad based and strongly related to the basic principles outlined in the United nations Declaration on the New International Economic Order.

The Belgrade Charter (1975)
Adopted unanimously at the close of a 10-day International Environmental Education Workshop at Belgrade, the Belgrade Charter laid down the principles and established the guidelines for world-wide environmental education.

The Tbilisi Declaration (1977)
The world's first ministerial-level Intergovernmental Conference on Environmental Education was organized by UNESCO in cooperation with UNEP and convened in Tbilisi, Georgia (USSR), 14-26 October 1977. Adopted by acclamation at the close of the Intergovernmental Conference, the Tbilisi Declaration noted the harmony and consensus which had prevailed among participant.

The Tbilisi Conference invited educational authorities to promote and intensify thinking, research and innovation in regard to environmental education. Participants also urged member States to collaborate in this field, in particular by exchanging experiences, research findings, documentation and materials and by making their training facilities widely available to teachers and specialists form other countries.

The Tbilisi Declaration together with recommendations of the Conference constituted the framework, principles and guidelines for environmental education at all levels - local, national, regional and international - and for all age groups both inside and outside the formal school system, eg. both formal and non-formal education. Participants, accordingly, established by consensus that *the goals of environmental education are*:

- to foster clear awareness of, and concern about, economic, social, political and ecological interdependence in urban and rural areas
- to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment
- to create new patterns of behaviour of individuals, groups and society as a whole towards the environment

Guiding principles of environmental education should:

- consider the environment in its totality - natural and built, technological and social (economic, political, cultural, historical, moral, aesthetic)
- be a continuous lifelong process, beginning at the preschool level and continuing through all formal and non-formal stages
- be interdisciplinary in its approach, drawing on the specific content of each discipline in making possible a holistic and balance perspective

The categories of environmental education objectives are:

Awareness: to help social groups and individuals acquire an awareness and sensitivity to the total environment and its allied problems.

Knowledge: to help social groups and individuals gain a variety of experience in, and acquire a basic understanding of the environment and its associated problems.

Attitudes: to help social groups and individuals acquire a set or values and feelings of concern for the environment and the motivation for actively participating in environmental improvement and protection.

Skills: to help social groups and individuals acquire the skills for identifying and solving environmental problems.

Participation: to provide social groups and individuals with an opportunity to be actively involved at all levels in working toward resolution of environmental problems.

United Nations Declaration for a new International Economic Order

This document calls for a new concept of development which takes into account the satisfaction of the needs and wants of every citizen of the earth, of the pluralism of societies and of the balance and harmony between humanity and the environment. What is being called for is the eradication of the basic causes of poverty, hunger, illiteracy pollution, exploitation and domination. The previous pattern of dealing with these crucial problems on a fragmentary basis is no longer workable.

- examine major environmental issues from local, national, regional and international points of view so that students receive insights into environmental conditions in other geographical areas
- focus on current and potential environmental situations while taking into account the historical perspective
- promote the value and necessity of local, national and international cooperation in the prevention and solution of environmental problems
- explicitly consider environmental aspects in plans for development and growth
- enable learners to have a role in planning their learning experiences and provide an opportunity for making decisions and accepting their consequences
- relate environmental sensitivity, knowledge, problem-solving skills and values clarification to every age, but with special emphasis on environmental sensitivity to the learner's own community in early years
- help learners discover the symptoms and real causes of environmental problems
- emphasize the complexity of environmental problems and thus the need to develop critical thinking and problem-solving skills
- utilize diverse learning environments and a broad array of environmental approaches to teaching/learning about and form the environment with due stress on practical activities and firsthand experience

BASIC CONCEPTS OF ENVIRONMENTAL EDUCATION

Summarized from an article in Connect: UNESCO-UNEP Environmental Education Newsletter. UNESCO: Paris, France, XV (2), pp. 1-4. 1990.

Levels of Being

There are three distinct levels or systems of being, social, biological and physical, each of which obeys its own laws plus those of all lower levels. They are: (a) the physical planet, its atmosphere, hydrosphere (waters), and lithosphere (rocks and soils), all of which obey the laws of physics and chemistry; (b) the biosphere, all living species, which obey the laws of physics, chemistry, biology and ecology; (c) the technosphere and sociosphere, the human created world of buildings and machines, governments and economies, arts and religions and cultures, which obey physical, chemical, biological and ecological laws, and also further laws of human devising.

Listing key environmental concepts in a logical order can be misleading, since the very process of categorization violates one of the concepts - namely, that the world, the environment, is a whole, that everything is interconnected. No categorization of life's great variety can be regarded as complete, nor the assignment of definitive priorities. The environmental educator is invited to add to it, rearrange it, join in the vitalizing search for the most fundamental things to learn and to teach about the wondrous complex system we call our Planet Earth.

It has taken millions of years for the species of life now on earth to evolve; because of human destruction of their habitat alone, about one species a day becomes extinct. It takes about 300 years to form 3 centimetres of good topsoil; bad farming can remove that soil within ten years; one violent storm or flood on unprotected land can remove it in hours.

Cycles

Matter cannot be created or destroyed. The material of the planet stays on the planet, undergoing continuous transformations, powered by the energy of the earth and sun. As environmentalists say: "There is no such thing as a free lunch;" "Everything goes somewhere." "There is no Away to throw things to." In other words, materially the earth is a nearly closed system. Transformations must come from combinations of the matter already there. Energetically, however, the earth is an open system. It receives constant energy from the sun, which it must re-radiate back out into space in order to maintain a controlled temperature.

A healthy, beautiful environment is not a luxury, it is a basic human need, both materially and non-materially.

The materials necessary for life - water, carbon, oxygen, nitrogen, etc - pas through biogeochemical cycles that maintain the purity and the availability of these materials for living thing.

Complex Systems
Everything is connected to everything else.
Think of the world as organized in systems which consist of three components: elements, interconnections and a function or purpose. Systems are more than the sum of their parts; they are dominated by their interrelationships and their purposes. Systems are made up of interconnected stocks and flows.

Populating Growth and Carrying Capacity
Populations of living organisms tend to grow exponentially, when they are able to grow at all. One bacterium divides into two. The two divide into four. After ten divisions there are over 1,000 bacteria. After twenty, there are over one million. The limit to the rate of production of any renewable resource base puts an upper boundary, called the carrying capacity, on the number of organisms that can be sustained on that resource base. The carrying capacity for human life and society is complex and dynamic; it moves up and down, depending on how well human beings manage their environment. The carrying capacity is defined by its most limiting, not its most abundant, component. It is like a chain whose strength is determined by its weakest link. Carrying capacities can be enhanced or degraded by human activity.

Environmentally Sustainable Development
Human wealth and economic development ultimately drive from and depend upon the resources on the earth. Sustained development is impossible if environmental degradation is allowed to continue. The earth's resources are sufficient for all living creatures' needs, if they are managed efficiently and sustainably. There should be enough soils, waters, materials and energy to meet the basic needs of at least one more population doubling on earth, if those resources are wisely managed and equitably distributed. Both poverty and affluence can cause environmental problems.

Socially Sustainable Development

The key to development is the participation, organization, education and empowerment of people. Sustainable development is not production-centred; it is people-centred..Sustainable development must be appropriate not only to the environment and resources but also to the culture, history and social systems of the place where it is to occur. Appropriate technology is a demonstration of this. Development must be equitable, fair. No social system can be sustainable over the long term when the distribution of goods within it is unjust, especially when some part of the population is consigned to chronic debilitating poverty.

Knowledge and Uncertainty

We don't fully understand how the world works; we don't even understand how much we don't understand. For example, there are about 400 nuclear power plants in the world, each producing radioactive wastes with half-lives of up to 24,000 years. Nuclear technology has been pursued as if someone knew with great certainty how to protect those plants from catastrophic failure, how to decommission them safely when their productive life is over,how to keep their wastes from the biosphere and hydrosphere for tens of thousands of years. We are proceeding under an assumption of much greater knowledge than we actually have, and the risk in cases of failure is tremendous. We make decisions under grave uncertainty. When the results can be devastating and irreversible, we must manage the risks very carefully.

NON-FORMAL ENVIRONMENTAL EDUCATION

This summary has been abridged from Guidelines for the Development of Non-Formal Environmental Education, UNESCO-UNEP Environmental Education Programme, Environmental Education Series # 23. 1986 UNESCO (A.J. Young and M.J. McElhone).

The planning, organization and methodology of non-formal EE varies enormously from one country to another:

- In Nepal, for example, Radio Nepal broadcasts a regular weekly programme on ecology with an emphasis on the preservation of forests, a particular problem in Nepal.
- The Iraqui Environmental Protection Society has confined its activities to the production of publications aimed at stimulating public awareness.
- The Sahel-Vert operation, which was conducted in Senegal, was a practical exercise in out-of-school EE involving nearly two thousand young people in a tree planting programme covering almost 700 hectares of the Sahel Desert.
- The Nature Protection League of Poland, in co-operation with various youth and adult groups, has set up school nature camps and environmental research centres for young naturalists.
- In Indonesia, the Government accepted that a non-formal EE programme was needed to enhance public awareness of environmental problems. Consequently a team of non-formal educators, based its campaign on local environmental issues. The public is reached through a regular series of lectures to youth and women's organizations.
- In Wales, the Prince of Wales' Committee, a charitable organization, is responsible for the supervision of a large number of environmental improvement projects, often using the labour of the young unemployed. The financing of such projects is provided by Government sponsored agencies such as the Manpower Services Commission and the Welsh Development Agency.

The above examples, along with many others which could have been cited (see the case study section of this workbook), illustrate the variety, complexity and versatility of educational and practical activities which could be classified as non-formal EE. Some programmes are government controlled, others are sponsored by non-governmental organizations (NGO's) while some are a combination of both.

This flexibility of approach is an important feature of non-formal EE and is advantageous because there is a need to vary the approach to meet the needs of differing target groups and their specific situations.

The development of non-participatory EE programmes that are more structured, educative and interactive, is critically important for those countries in which environmental issues are immediate and relevant to the day-to-day lives (or deaths) of the people. In such countries the formal education system is often disadvantaged by lack of resources, high drop-out rates and insufficient placements at secondary school and subsequently the non-formal EE programmes of a participatory nature assume an increased significance.

Problem-Solving

The concept of 'problem-solving' as a teaching technique is a recurring theme in much of the literature on EE. It is frequently referred to in the report on the Tbilisi Conference and subsequently in other UNESCO/UNEP publications.

This implies a teaching methodology that gives equal importance to the analytical and theoretical approach of the scientific method as well as to the more synthetic and pragmatic problem-solving approach.

The methodology of non-formal EE

Non-formal EE may be classified as either participatory or non-participatory.

Non-participatory includes radio and T.V. broadcasts, press articles, visits to institutions such as museums, zoos, aquaria etc., and also listening to the occasional lecture at a local club. These non-participatory forms of non-formal EE are very prevalent throughout the world.

During the last decade, the increased incidence of T.V. programmes dealing with environmental problems such as conservation, pollution, famine etc., is a measure of the concern felt by the general public for these important issues.

Problem-solving provides a basis for a relevant and meaningful curriculum, it is also highly participatory and allows individuals to develop critical thinking skills which are transferable to many other situations. Success in a problem-solving situation, no matter how small and insignificant, can lead to a much improved self-image. People begin to realize that they can become change agents for the benefit of themselves and their society.

The persistence of many environmental problems indicates that there are a limited number of people who are trained to identify and effectively solve complex environmental problems. It also indicates that problem-solving is a difficult process and, furthermore, using problem-solving as a teaching technique equally arduous. Some of the latter difficulties arise from constraints within existing formal systems and may be overcome by developing problem-solving programmes in the non-formal system. For example, learners can be encouraged to deal with controversial issues and develop interpersonal communications skills and values which aid the handling of complex issues. Teachers and leaders who are not well versed in the art of problem-solving can be made aware of how controversy may spark learning if handled effectively. Many educational programmes could be designed around a problem-solving format and involve an integrated or interdisciplinary study rather than academic subjects involving competency testing.

Briefly, participants in the problem-solving exercise must:

1. Recognize and define the problem
2. Collect, organize and analyze the information
3. Generate, evaluate and select alternatives
4. Develop, implement and evaluate a plan of action
5. Evaluate the process.

One non-formal methodology

Popular theare is effective because it can provide entertainment, as well as involving many people who are left out of development activities because of their literacy or lack of understanding of the official national language. It is also a means of cultural expression which everyone in the community is capable of and acts as a public or social activity which brings the community together.

During the last decade, there has been an increasing use of popular theatre as part of a two-way communication process. The purpose of such programmes is not simply to impart information, but also to develop a critical awareness and generate a commitment to collective action.

The use of drama/popular theatre

The use of popular theatre as a communication medium for development projects has a long history. In the late 40's, teams of field workers toured villages in Ghana using drama and demonstration to educate and involve people in campaigns for such topics as family planning, child care, cocoa disease eradication etc.

Here are some points to remember:

- The issues to be examined should be carefully chosen so that action can take place; increased social awareness and social conscience with no resulting action can lead to frustration.
- Sometimes the excitement and enjoyment of participating in the performance may be such a distraction that the intended message is not transmitted.
- Popular theatre is at its most effective when the resulting motivation and enthusiasm can be harnessed to an existing organizational framework.

PLANNING ENVIRONMENTAL EDUCATION AT THE NATIONAL LEVEL

(This section is a brief summary of a publication by the Unesco-UNEP International EE Programme, entitled Environmental Education Handbook for Educational Planners, available in English to institutions requesting it by writing to Connect, 7, Place de Fountenoy, 75700 Paris, France ; or to the National Institute of Educational Planning and Administration (NIEPA), 17-B, Sri Aurobindo Marg, New Delhi-110016, India.)

Planning a national EE programme is not just a one-time affair. Rather, it must be a continuous process with a built-in capacity to adapt itself to the changing demands of the environment of the country as well as educational developments. Thus, the National Planning Group must present short-term EE action plans as well as a dynamic, self-correcting, long-term perspective for the nation's environmental education.

A national environmental education (EE) strategy must be designed according to the specific conditions - economic, political, cultural, etc. - of the country. With regard to a national strategy for EE as a planning and management process, five critical factors might be listed:

- the country's level of interest and commitment to EE - to be assessed in terms of national policies or budgets in the areas of education, environment and natural resources and also in terms of ideas and behaviour of political and educational leaders, citizens, educational practitioners and environmental professionals
- the country's experience with national planning and management of educational efforts in general within which the national EE strategy must be made operational
- the country's past efforts and experiences with EE - which naturally vary widely from one nation to another
- the availability and potential of resources for planning and implementing the EE strategy - to be assessed in terms of leadership, implementing organizations, money and materials, skilled workers, professional and volunteer activists
- the overall situation in the nation with regard to existing barriers to, as well as favouring forces for, effective realization of a national EE strategy and plan

The organization of a National EE Planning Group, headed by the Minister of Education or any other appropriate authority, helps start the initial planning activity and, equally important, assures the necessary support personnel for its implementation. In planning the National Group, it is important to remember that the planning and implementation of environmental education, both formally and nonformally, calls for not only educational professionals but also other specialists, directly or indirectly involved with environmental concerns, as well as different socio-economic and ethnic groups. Involvement of people with such diverse interest and competencies can ensure that elements of the eventual EE action plan are truly relevant to the environmental needs and priorities of those most affected by environmental problems.

Ten steps have been devised for the process of developing and EE action plan:
(1) specification of objectives, short-term and long-term
(2) identification of target groups
(3) conceptual framework
(4) programme formulation and EE curriculum development
(5) institutional arrangements for EE
(6) implementation of EE programmes and curricula

An action plan

1. Formulate a national policy on environmental education which clearly sets forth the country's commitment to the cause of EE and the national approach to be adopted for achieving EE goals and objectives.

2. Prepare of short- and long-term plans for realizing the national EE strategy.

3. Formulate specific programmes for implementing the EE strategy and plan.

4. Work out implementation strategies and tactics for putting the various EE programmes into operation.

5. Create necessary institutional, organizational and management structures at both the national and local levels for this operation.

6. Develop a Management Information System (MIS) to oversee and ensure effective implementation, evaluation and improvement of the EE strategy and programmes.

(7) interagency coordination mechanism (ensuring proper linkages among the different partners involved in EE implementation)
(8) development of the above Management Information System
(9) resource planning and mobilization (involving establishment of priorities, in view of almost universally limited resources)
(10) research and development (so that EE planning and programming become a continuous process keeping pace with educational and environmental developments and changes).

The introduction of environmental education into the national educational system is a complex task - not least because it involves not only the formal school system but also the loosely-defined and multiple channels of nonformal education for out-of-school youth and adults. Furthermore, members of the National Planning Group have to keep in perspective the currently existing parameters and situation of the nation's education efforts and try to integrate the environmental dimension into them. This may well require at times redefining the parameters and redesigning the basic components of the educational system - which clearly poses a major problem for all educational planners of most countries.

PRINCIPLES OF ENVIRONMENTAL CITIZENSHIP

These principles have been adapted and summarized from A Primer on Environmental Citizenship. Environment Canada. Minister of Supply and Services Canada: Ottawa, Ontario, pp. 3-7. 1993.

Our responsibilities are rooted in the communities to which we belong. The most immediate of these is the family. On a larger scale, we are also part of local and national communities. In fact, on a global scale, we are members of the community of all human beings - the human species. Each of these communities can generate responsibilities. Environmental citizenship is about recognizing that we are part of these communities, and acknowledging the environmental responsibilities that membership in these communities brings.

- The term 'environmental citizenship' is a way of describing the ethical obligations that link us with other members of the biosphere
- Environmental citizenship is an idea - the idea that we have responsibilities for the environment

- Specifically, we have an obligation to care for the Earth, our common home
- We are part of a still broader community - the community of all living things. In the broadest sense of the term, being an environmental citizen means acknowledging membership in this community.

Environmental Citizenship involves learning

Being an active citizen means becoming involved. Being an effective citizen, however, requires becoming informed as well. Responsible environmental action requires understanding, not just awareness and concern.

Environmental citizenship helps the environment by:

- contributing to preventing problems that would otherwise require difficult, costly solutions
- improving the quality of public policy. A high level of knowledgeable participation in the public debate surrounding issues of environment and development stimulates the creation and implementation of good policies.
- encouraging the recognition of common goals and values. While conflict is a natural feature of all social life, the mark of a successful society is that it deals with conflict in constructive manner.

Our tendency to view the world as composed of distinct units is aggravated in the case of the environment by the fact that there has been a tendency in our society to think of humanity apart from nature, not as a part of nature. Despite the technological and economic changes of the past 200 years, we remain enmeshed in ecological systems of great complexity. We are part of a broader community of life.

People cannot feel an ethical or moral obligation for something to which they have no connection.

If people do not see how they as individuals interact with and affect the ecological community of which they are part, they cannot feel any sense of obligation or responsibility toward it.

Without some degree of ecological consciousness, people are unlikely to engage in responsible environmental action. In other words, active environmental citizenship is rooted in an ecosystem perspective.

In turn, environmental citizenship reinforces the ecosystem approach. Being a citizen - an equal, participating member of a community - involves responsibilities as well as rights. The ethical message of environmental citizenship is simply that we all have a responsibility to care for the environment. This responsibility derives from the fact that we are not isolated units, but members of a broader community. At its broadest level, it is the community of life itself. Acknowledging the responsibilities that flow from this membership reinforces our awareness of interconnectedness, which is the key to the ecosystem concept.

PRINCIPLES OF ADULT EDUCATION

This section has been taken from the author's Masters thesis: Adult Environmental Education: Designing and Facilitating Workshops on forestry-wildlife integration. 1990. St. Francis Xavier University, Antigonish, NS, Canada.

Adult Education has several fundamental principles:

1. Learning is a lifelong process.
2. The adult learner has distinct characteristics.
3. New ideas and changes in behaviour are adopted at different rates.

Characteristics of the Adult Learner

Brundage and MacKeracher , Adult Learning principles and their Application to Program Planning(1980, Ministry of Education, OISE, Ontario) summarize the major characteristics of the adult learner and their implications for planning and facilitating programs. These characteristics can be grouped in the following way:

1. Adults learn more when their experiences are acknowledged and used in the learning process.
2. Physiological factors are important in adult learning, especially physical comfort and the learner's ability to see and hear.
3. An adult's self-concept plays an important role in learning; trust and approval are important.
4. Adults are motivated to learn by practical needs; they often require assistance in articulating these needs and in identifying a strategy to meet them.
5. Adults experience stronger emotions than children when learning; less learning takes place when learners feel stress.
6. Adults view time differently than children; learning must be pragmatic, experience-based, and quickly accomplished.
7. Adults must often learn to cope with paradoxical life situations and changes; problem-solving abilities are enhanced when facilitators are open and tolerant.
8. Adults have different learning styles (four key styles); any group usually will be heterogeneous; there is no one "best way" to learn.
9. Adults experience key developmental and transitional points in their lives which affect learning.

A fundamental characteristic in much of the literature is that adults learn differently than children.

Many authors maintain that the most important principle underlying adult learning is the need for self-direction by the learner in identifying needs and objectives. The use of experience is also a key factor in adult learning. Throughout the literature there is consistent reference to the distinct learning characteristics and needs of adults and how knowledge of these needs can be applied to educational programming. This literature will aid the educator in making critical decisions during the planning process. However, there is another area of literature which will aid the educator further in making these decisions. This literature is devoted to how adults process and accept new and innovative ideas.

ADULT EDUCATION PROGRAM PLANNING AND DESIGN

This section has been summarized from *Action Models in Adult Environmental Education* by Elaine Andrews, Anne Camozzi and Pam Puntenney 1994. North American Association for Environmental Education. Troy, Ohio.

When do adults learn?

1. When they feel comfortable.
2. When they feel respected.
3. When they're allowed to make mistakes.
4. When they can have some fun.
5. When they have a distinct need to know something.
6. When the content is meaningful and relevant.
7. When they can use their experience in the learning situation.
8. When they are allowed to learn in the way that suits them best.
9. When the process is highly interactive and participatory.
10. When they are allowed to evaluate and especially evaluate themselves.

Steps in program design

1. Conduct a needs assessment. What do participants want and need? What does the organization want and need?
2. Formulate objectives based on organizational and personal needs.
3. Design a program to fulfil objectives.
4. Implement the program.
5. Evaluate the program

Some hints

1. Content should be appropriate to learner and organizational needs.
2. Content should relate to learner's job and be practical.
3. Elements of the program should be within the facilitator's range of competence.
4. Program agenda should be flexible; allow time for changes and evaluation.
5. Goals and format should be clear to participants
6. Learning environment should be comfortable.
7. Allow time for climate-setting.
8. Choose an appropriate format.
9. Analyze available resources.
10. Select appropriate educational techniques

Program formats

1. *Individualized learning*: home-study/correspondence course; self directed learning projects.
2. *Group learning*: action projects, institutes, workshops, clinics, conferences, conventions, courses, large meetings, exhibits, fairs, festivals, trips and tours.

Teaching methods

1. *Lecture*. Over-used; learners are passive; can be dull unless presenter very skilled. Effective to present ideas to a large group in a short time. Usually more effective when combined with visual aids and handouts.

2. *Discussion*. Without thorough preparation discussion can meander and deteriorate; can be time consuming. Effective because participation sparks interest; is stimulating, sharing ideas can be very productive.

3. *Demonstration*. Involves four fundamental steps; explanation, demonstration, imitation/practice, correction/application.

4. *Inquiry*. Using thoughtfully phrased questions that are challenging, to the point, easily understood, and clear.

Some educational techniques

1. Brainstorming/brainwriting
2. Case study
3. Role play
4. Discussion/buzz groups
5. Panel
6. Interview

NEEDS ASSESSMENTS

What are needs assessments for?

1. To find out what people want
2. To find out people's attitudes
3. To find out what response/solution is best
4. To find out what changes are required to make a program more effective

Why do you need needs assessments?

1. To develop long and short range plans
2. To help define and solve problems
3. To help decision-makers set priorities
4. To prove you know what you are doing
5. To surface opinions
6. To develop support and stimulate action

How to you start a needs assessment?

1. Identify the information you require
2. Identify the sources of your information
3. Choose the method for gathering information

What methods of needs assessment are there?

1. Observation
2. Questionnaires
3. Key consultations
4. Print media
5. Interviews
6. Group techniques
7. Tests
8. Records, reports, files and data banks

The Information Gathered in A Needs Assessment

1. A needs assessment identifies the GAP between the present situation and the desired situation
2. You should examine both present and desired behaviour, knowledge, skill, attitudes and awareness
3. You should also be collecting data which will be useful in the evaluation stage. Some questions to ask:

What will make the program effective?

Will people learn?
Will the knowledge be useful?
Will knowledge and skill improve?
Will attitudes change?

What will make the program efficient?
Will the program make efficient use of resources?
Is it cost-effective?

What will make the program appropriate?
Will the program lead to the desired results?

What will make the program adequate?
To what extent will the program help to solve problems?
Will it go far enough?
Will it fall short?

NEEDS ASSESSMENTS TAKE THE GUESSWORK OUT OF PROGRAM PLANNING AND DESIGN

THE ADOPTION AND DIFFUSION OF NEW IDEAS

This section has been taken from the author's Masters thesis: Adult Environmental Education: Designing and Facilitating Workshops on forestry-wildlife integration. 1990. St. Francis Xavier University, Antigonish, NS, Canada.

Of particular interest is the process by which new ideas are adopted into common practice. This area of inquiry seems particularly important because of the urgency of global environmental problems facing today's educators.

E.M. Rogers (1983, Diffusion of Innovations, Free Press)) defines these steps on the basis of more recent and comprehensive research. he now feels that the adoption-diffusion process is more accurately described as follows:

1. Knowledge: The learner is exposed to the idea and has some understanding of its function.
2. Persuasion: The learner forms an attitude towards the innovation.
3. Decision: The learner engages in activities that lead to a choice to adopt or reject the innovation.
4. Implementation: The learner tries the idea.
5. Confirmation: The learner seeks reinforcement of an earlier decision to adopt. At this stage the learner may reject or finally adopt the innovation.

Rogers notes that in any innovation there is often an inherent bias which may or may not be for the general good of an adopter. This bias should be identified and closely examined before adoption models are put to use.

Inherent bias is of particular importance in the case of proposals for improving the environment. Environmental issues are highly complex with many implications and educational programs could have alarming economic, biologic, and cultural repercussions if they served only in providing a limited advantage to one sector of society at the expense of others.

It is incumbent on educators to determine not only the relative advantage of an idea to the learners, but also to ascertain the relationship of the idea to ecosystems. In environmental education, an advantage is particularly difficult to gauge since a local disadvantage may have a global advantage. As a broad example, there would be much advantage to the quality of the global environment if forest cutting in tropical rain forests was severely limited. This limitation, however, may escalate the economic problems faced by the countries in which the harvesting is taking place, thus creating a local disadvantage.

As well as carefully examining the idea or innovation, educators should be aware of the characteristics of the learners.

According to Rogers, there are several types of learners. Some are innovative and quick to adopt new practices; others are "laggards" who are generally more conventional and slower to change. The speed at which a new practice is adopted also may be influence by its perceived importance, its necessity,or the advantage to learners of changing their practices.

Perceived "advantage" is one of the most important aspects influencing adoption. A new idea must fit into current norms and values, and be easy to communicate, understand, and apply. Whether or not the idea can be tried on a limited basis first will also influence the rate of adoption The rate of adoption is further influenced by who decides that a new idea should be adopted . When the decision is made by authorities a new idea is adopted quickly but generally it is less stable. When the decision is a collective one, the rate of adoption is slower but change usually is more permanent and stable.

CHANGING BEHAVIOUR

This is an abridged version of an article by Elaine Andrews entitled Changing Behaviour and Making it Stick. The title borrowed from an article of the same title written by Raymond De Young in Environment and Behaviour, Vol. 25, No. 4, July 1993. Many points summarized here are presented in more detail in "Critical Review of Behavioral Interventions to Preserve the Environment," an article in Environment and Behaviour, Vol 25, No. 3, May 1993 by Dwyer, Leeming, Cobern, Porter, Jackson.

When concern about the environment first gained momentum, educators focused on environmental awareness, knowledge, attitudes and values of individuals. The theory was that by increasing public awareness and knowledge about environmental concerns, individuals would adjust their attitudes and values about the environment and then choose actions which reflected those newly sensitized attitudes and values. Being the curious people that they are, researchers then set about figuring out how exactly this would happen. What education strategies could be employed to make it work?

Recommendations which have emerged from behaviour studies are to:

- help citizens understand how their individual action will make a difference, rather than tell them how bad things will be if they don't change
- take advantage of existing social structures to provide an avenue for your new information

Research has shown us the following information about behaviour change:

1. Numerous studies have shown that while education programs can affect participant attitudes and values, attitudes are not a predictor of behaviour. For example, in one instance researchers had surveyed neighbourhood attitudes about recycling. Some residents thought the idea was good, others thought it was a bad idea. Later, the community decided to go ahead and provide a curbside pickup recycling program. Participation was low. But when researchers went back to look at who was putting out their recyclables, they found that there was equal participation among those who thought it was a good idea, and those who thought it was a bad idea (my wording). In other words, self reported attitudes about recycling did not predict observable recycling behaviour.

2. Behaviour is not influenced by information provided in educational materials such as new articles or brochures when the citizen does not plan to change their behaviour. However, information brochures were found to be an important source of information when the citizen is already convinced about the new behaviour, but is not sure of how to do it (for example, the person plans to recycle their used motor oil, but does not know where to take it).

3. People are more likely to change behaviour when:

a. they have had a personal discussion with someone about the new behaviour, e.g. a neighbour asks them if they plan to wash their car on the lawn instead of on the street.

b. when there is peer pressure, e.g. others on the street are visibly engaging in the new behaviour, such as washing their car on the lawn.

c. when they get an opportunity to verbalize a commitment to change.

d. when they get a chance to practice the new behaviour while in the educational setting.

URBAN PROBLEMS AND ENVIRONMENTAL EDUCATION

This articles has been summarized from 1988 Connect: UNESCO-UNEP Environmental Education Newsletter. UNESCO: Paris, France, XIII (3), pp. 1-3.

An intergraded EE project for Ceilandia, an overcrowded area of 25 km^2 outside Brasilia, whose population lived largely in slum conditions has been developed. The accelerated demographic growth since 1971, accompanied by a low socio-economic level and lack of minimal facilities, led the government of the local Federal District of Brazil to implement a sweeping action plan, with environmental education as an essential component, in order to turn the situation around

Most of the world's population will be living in cities by the year 2000, and many of the cities will be mega-communities marked by overcrowding, air pollution, stress and other worsening problems.

But perhaps of greatest concern is the fatalism with which these predictable threats to human life, safety and well-being seem to be seen as inevitable and stoically to be accepted as the price of so-called progress and growth.

The Ceilandia project involved 44 educational units based on the district's schools, each functioning as the resource centre for an entire community and directly contributing to its social and physical rehabilitation. Environmental training activities engaged over 1000 individuals -- teachers, administrators, community leaders -- in the collective effort. Results measurably included: (1) improved environmental behaviour patterns; (2) greater interest in achieving personal as well as community goals (public health, cultural pursuits, etc.); (4) augmentation of community campaigns and action groups for community improvement; and (5) development of EE methods and materials not only applicable to Ceilandia but extendable to other troubled urban areas.

Similarly, a pilot project for primary schools in marginal urban settlements of Peru was conducted in the framework of the International EE Programme (IEEP). The principal thematic concerns were: prevention of the deterioration of air, water and soil; the improvement of health and hygienic conditions, and improvement of social and cultural relationships in the experimental areas. EE materials were developed and the project's pedagogical results were incorporated into the primary and secondary curricula of the Peruvian educational system.

In India, a pilot project was supported which aimed at: developing multimedia EE materials related to major environmental problems in urban areas involving health, nutrition, pollution, etc., environmental training of community leaders; and activities aimed at improvement of the environmental quality of marginal urban areas. In England, a pilot project supported by the IEEP and carried out by the Town and Country Planning Association of London had as its objective -- development of updated information on urban environment programmes for European educators. Two courses were held in this connection whose goal was to bridge the gap between those involved in urban planning and design and those involved in teaching these subjects at institutions for the training of secondary-level teachers.

Fundamental principles, approaches and methods have since been developed in No. 4 of the IEEP's Environmental Educational Series: Educational Module on Environmental Problems in Cities (available in English to institutions). The module surveys EE goals and guiding principles, then it establishes its own objectives together with a set of student activities to accompany them. A summary of these objectives and activities might suggest the outline for a practical, problem-solving EE course or programme on urgent urban problems for pupils and students at primary and secondary levels of education:

MORE ON URBAN ENVIRONMENTAL EDUCATION

This section has been summarized from an article in Connect: Changing Minds - Earthwise. Barry, Joseph (1976-1991).Paris, France pp. 23-27.

Here are some specific issues related to urban education which should be developed in adult environmental education programming:

The Urban Environment -- Describe elements of the natural and built environment in the city; list activities carried on by the city; locate major above-ground networks; describe environmental changes in the city initiated by people; describe consequences, environmental, social and economic, of each of these changes; list natural resources which are brought into the city daily; describe how natural resources reach the city from their original sources; and list natural resources and man-made products which leave the city daily.

People and the City -- Discuss a number of differences between urban and rural behaviours and ways of thinking; list deviant behaviours which are more common in cities than in rural areas and discuss reasons for the higher rate of deviant behaviours in the cities; and describe a healthy city neighbourhood.

City Growth Patterns and Land Uses -- Explain why the city is located where it is; describe the natural site, land and water formations, original vegetation and wildlife at the site; list parts of the city today which were once small outlying communities; explain why growth has occurred in existing directions; list suburbs of the city; locate land in the city used commercially, industrially, residentially; for transportation; owned by the government; and/or devoted to open space; and describe uses of open space in the city.

Transportation in the City -- Describe how the city makes decisions about the construction and use of city streets and freeways; explain the costs and benefits of moving people about the city in automobiles as compared to other forms of transportation -- rail systems, buses, motorized bicycles and bicycles -- considering monetary, environmental and social costs and benefits; list things each person can do to make the city's transportation networks a more positive part of the city.

Climate and Air Quality of the City -- Describe how the climate in the city differs from the surrounding countryside; describe how paved surfaces affect the temperature of the city; describe how winds are altered by city structures; discuss the causes of city haze; list sources of air pollution; list air pollutants produced by automobiles; describe the differences in levels of air pollutants generated by automobiles with different engines and exhaust systems; describe how the city monitors air pollutants ; list regulations which are in effect or could be implemented by the city to control the emission of air pollutants; list costs of air pollution related to human health and damage to vegetation and materials; and describe emergency measures the city has, or could have, if air pollution levels were to become dangerously high.

Water Quality and the City -- Explain how fresh water reaches the city; describe how water is disinfected and distributed to homes, businesses and industries; list consumptive uses of water; list non-consumptive uses of water; describe effects of wastes added to water by major users, or groups of users such as schools or residences; discuss how the city monitors water quality; list regulations which are in effect or could be implemented by the city to control the adding of pollutants to city water; describe steps used by the city to clean waste water from schools, homes and businesses; list additional steps which could be used to clean city water; describe how several industries remove industrial waste from water; and list ways each individual can improve water quality in the city.

Urban Solid Wastes -- Describe how solid wastes, trash, garbage and litter, are disposed of in the city; describe alternative disposal methods for city wastes; list solid wastes disposed of by the school and by homes each week; list solid wastes disposed of by several industries; and describe ways individuals can help reduce the amount of wastes in need of disposal in the city.

City Noise -- List sources of noise in each of these locations: the school, a residence, businesses, a busy street, a less frequented street and a park; list ways each of the city noises listed could be lessened, at the source, as the sound is transmitted, or by protecting the receiver of the sound; list industries in your city which expose workers to constant noise levels; describe regulations which are in effect, or could be in effect, to reduce noise levels; and describe the effects of noise on those who live int he city.

Nature in the City -- Describe benefits of vegetation in the city; list species of wild life, other than domesticated or zoo animals, which live int he city; list species of wildlife, excluding insects, well-adapted to city life which are considered pests and describe why they thrive; describe types and uses of gardens and lawns in the city; and describe types of parks, open spaces, or natural areas and the uses of each in the city.

TEACHING GLOBAL CHANGE THROUGH ENVIRONMENTAL EDUCATION

This section has been summarized from 1993 Connect: UNESCO-UNEP Environmental Education Newsletter. UNESCO: Paris, France, XVIII (1), pp. 1-4.

Agriculture, forestry, energy production, human population increase with its socio-economic repercussion have been considered, to a great extent, responsible for alterations in the earth's ecosystem resulting in global warming, ozone depletion, loss of biodiversity, which are but a few of the alterations that transcend national boundaries and must needs be viewed on a global perspective.

> The earth's environment has changed more rapidly in the past generation than at any other comparable time in history, one of the primary sources of these dynamics being precipitated by human interaction with the biosphere.

Although some controversy is possible regarding the entire spectrum of environmental issues involved in global change, there could be a broad agreement on the key ones.

Some of the basic, most significant, current issues involved in the phenomenon of global change then, could be considered to be: a) global warming; b) tropical deforestation; c) human population; d) energy consumption; and e) global land use.

Global warming
Between 6,000 to 18,000 years ago a global warming of 5°C was responsible for tremendous shifts in the earth's vegetation. Recent scientific data suggest a warming trend of 3°C in the next century alone, the consequences of which can well be imagined when compared to the previous 5°C warming in 12,000 years. An unprecedented increase in the greenhouse gases, like carbon dioxide, chlorofluorocarbons, menthane, etc., which are considered a major factor in the global warming phenomenon, could have disastrous short term consequences such as reduction of sea ice, rise in sea levels, regional vegetation changes etc., and the long-term damages are incalculable.

Tropical deforestation

Long considered an inexhaustible resource, the earth's forests and notably the tropical rainforests, are being rapidly depleted and degraded thanks to a variety of human interactions like agriculture, logging, ranching, fuel-wood gathering etc. In 1950 30% of the earth's land mass was covered with tropical rainforest as compared to 12% in 1975. The consequent loss of soil fertility, elimination of thousands of animal and plant species, climate variability resulting in droughts or floods, increase in greenhouse gases etc., have played a key role in the massive human displacements with dramatic consequences.

Toronto Globe and Mail, October 6, 1994.

"The concentration of lead-filled dust and smoke over Cairo is 10 times the limit regarded as acceptable internationally; each day, the centre of the city receives 1.7 tonnes per square kilometre. Mental retardation - largely attributed to lead poisoning - is up to 6.7 per cent in some areas and 29 per cent of children from industrial neighbourhoods have lung disease."

"In Florida's Lake Apopka, hardly any young alligators appear to be normal sexually. Around the world, says The Los Angeles Times, scientists are finding a menagerie of fish, birds and other wild animals where testosterone levels have dropped in the males while the females are super-charged with estrogen. "Both sexes sometimes are born with a penis and ovaries, and some males wind up so gender-warped they try to produce eggs," writes environmental reported Marla Cone. "This is no fluke of Mother Nature, no quirk of evolution. This is a likely legacy of pollution." By imitating hormones, polluting chemicals can cause infertility or other reproductive disorders. "If males aren't males and females aren't females... some outwardly healthy populations could be a generation away from extinction."

Human population

Human population growth is estimated to be one of the most important factors in increasing environmental stress, depletion of materials and energy resources, as well as an increase in solid, liquid and gaseous waste. As each eco-system has only a certain " carrying capacity," eg. the capacity to sustain exploitation of its resources without damaging its regenerative capacity, and humans depend upon the eco-system resources for survival, it is vital to harmonize human population growth with the environmental reality - eg. the carrying capacity of the concerned eco-system.

Energy consumption

Since 1900, world consumption of fossil fuels - which account for almost 85% of wold energy consumption - has increased nearly 4 times as fast as world population. Major sources of fossil fuel

- petrol, natural gas and coal, are expected to last for respectively 35-50, 60-80 and about 200 years. However, it is not only the depletion of these non-renewable energy sources that is cause for concern, but equally, the generating of harmful by-products due to their excessive utilization like smog, acid precipitation, petrol spills , or global warming.

Devising the right strategies to involve people in the search for solutions and providing them with the knowledge, the skills and the motivations is absolutely vital in dealing with the phenomenon of global change.

This can be achieved through environmental education whose objective is to develop a world population that is aware of, and concerned about, environment and development and associated problems, and which has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones.

Global land use

Of the 13 billion hectares of land on earth, 31% is forested, 25% is rangelands and 11% is cultivated - 33% being classified as "wasteland." As the first three categories supply a large portion of the resources utilized by humans and since the beginning of humanity, control and use of this land has been an essential aspect of human survival, the rapid growth of both human population and consumption has not only increased the variety of its uses but also the severity of the impact of the usage resulting in what is termed as land degradation and due to which the actual amount of land which can be utilized, is shrinking. In 1984 it was estimated that 35% of the earth's land surface was in peril and that approximately 6 million hectares of land were being destroyed annually, the primary causes of land degradation being overgrazing, over cultivation, salinization and deforestation leading to soil erosion, floods, loss of vegetation, droughts, desertification, poverty.

Of course, it is necessary not to lose sight of the fact that translating these objectives into instructional reality represents no mean task for the educator. In the specific case of global change instruction through environmental education, the educator is faced with an additional challenge: making learners capable of viewing global change holistically and at the same time being able to analyze individual issues at local and regional levels. There are also a certain number of problems that arise due to (a) lack of sufficient data in certain areas; (b) doubts regarding the accuracy and significance of existing data; and (c) the variety of interpretations of certain phenomena due to differing political, economic, religious and social values.

Global change, though a dramatic and potent reality for human beings, is still an extremely difficult phenomenon to conceptualize mainly because of the complexity of the dynamics and the number of issues involved. However, if educators, keeping in mind the holistic nature of the problem as well as the interrelations of the individual issues that go to form it, set their sights on the attainment of the goals of environmental education eg. awareness, attitudes, skills, motivation, commitment, and ethical responsibility, they will be well on the path to the formation of environmentally responsible citizens of tomorrow. For it is they who will be able to outweigh the factors - whether political, economic, social or cultural - that at present prevent to implementation of effective actions to counteract the negative effects of the phenomenon of global change as well as prevent the recurrence of problems that have arisen in the past.

ROUND TABLES - AN APPROACH TO DECISION-MAKING

This section is a summary of an article produced Kelly Hawke-Baxter of The National Round Table on the Environment and the Economy. For more information contact: The NRTEE, 1 Nicholas Street, Suite 1500, Ottawa, Ontario, Canada, K1N 7B7.

One of Canada's Response to Sustainable Development has been the development of the Round Table approach. There are now over 150 round tables on the environment and the economy in Canada. They are present in all provinces and territories, as well as at local and municipal levels. While diverse in their structure and function, they share the goal of promoting the principles and practices of sustainable development across sectors through consensus decision-making. Round Tables appoint **members from business, the labour movement, public interest groups, universities, aboriginal peoples, the environmental movement, government, the media, professional groups, and the arts.**

The National Round Table on the Environment and the Economy (NRTEE) was created by the federal government in 1988 as Canada's principal institutional response to the challenge of sustainable development. The NRTEE"s mandate is to: "...play the role of catalyst in identifying, explaining and promoting, in all sectors of Canadian society and in all regions of Canada, the principles and practices of sustainable development."

Current initiatives and programs of the National Round Table include:

Projet de Société: Planning for a Sustainable Future -- The NRTEE chairs a national multi-stakeholder assembly which is developing a national sustainable development strategy for Canada to fulfil the commitments made at the Earth Summit (UNCED) in 1992.

Sustainability Reporting -- The NRTEE recently provided advice to the Prime Minister on how to improve the government's capacity to report on progress toward sustainable development. As a complement to work in this area, the NRTEE has produced a background paper exploring the various options available in consideration of an environmental auditor general function in government.

Education -- The NRTEE, in partnership with ParticipACTION, is developing a national social marketing program for sustainable development which would create broad public awareness and facilitate changed attitudes, values, and behaviour leading to a sustainable society. The NRTEE is also conducting educational outreach with the academic community, media and youth.

Trade and Sustainability -- The NRTEE has provided advice to the Prime Minister on Canada's position at UNICED, and since 1991 it has been working on means of promoting sustainable development in Canada through international trade agreements and institutions. Most recently the NRTEE has provided advice on the North American Commission on Environmental Cooperation and the Asia-Pacific Economic Cooperation Forum (APEC).

Forest Round Table -- The NRTEE brought together 25 forestry stakeholder who, over the past two years have unanimously agreed to 26 principles for the sustainable development of Canada's forests, backed by action plans.

Pulp & Paper Round Table -- Over 20 stakeholder are currently working on principles to govern the sustainable production of paper and paper products in Canada.

Consensus Decision-Making -- Round tables across the country have agreed on and published a set of 10 basic principles guiding successful decision-making by consensus.

Rural Renewal -- The NRTEE is working with several partner agencies to find a way to renew rural life in a way that is sustainable - economically, environmentally and socially.

Economic Instruments -- The NRTEE spearheaded the creation of an Economic Instruments Collaborative, with over 26 members form environmental groups, oil and petrochemical companies, government and academics. The collaborative has produced a final report recommending that pilot projects be established for the use of economic instruments to reduce emissions of carbon dioxide, sulphur dioxide and nitrogen oxides.

Communications and Publications -- The NRTEE has produced over 50 books, how-to manuals and working papers to facilitate the understanding and implementation of sustainable development in variety of sectors.

HOW TO BUILD CONSENSUS

Guiding Principles of the Consensus Process developed by the National Round Table on Environment and Economy (Canada). For more information contact: The National Round Table on the Environment and the Economy. 1 Nicholas Street, Suite 1500, Ottawa, Ontario, Canada, K1N 7B7.

The Canadian National Round Table on Environment and Economy has developed a series of principles related to how to build consensus. These principles are:

Principle #1 - People need a reason to participate in the process.
The parties need a common concern and believe that a consensus process is the best solution. This belief requires an informed understanding of consensus processes and a realistic view of available alternatives.

Principle #2 - Inclusive not Exclusive - All parties with a significant interest in the issues should be involved in the consensus process. This includes those parties affected by an agreement that may be reached, those needed to successfully implement it, or who could undermine it if not included in the process.

Principle #3 - Voluntary Participation -The parties who are affected or interested participate voluntarily. The strength of a consensus process flows from its voluntary nature. All parties must be supportive of the process and willing to invest the time necessary to make it work.

Principle #4 - Self Design -The parties design the consensus process. All parties must have an equal opportunity to participate in designing the process. There is no "single" consensus process. Each process is designed to meet the circumstances and needs of the specific situation. Designing a consensus process enables the participant to become better acquainted before they deal with difficult substantive issues. It is important to take time at the beginning to:
-define the issues clearly;
-assess the suitability of a consensus process for each issue - as opposed to other decision-making processes;
-clarify roles and responsibilities for everyone involved;
-establish the ground rules for operating.

Principle #5 - Flexibilityshould be designed into the process.
It is impossible to anticipate everything in a consensus process. By designing flexibility into the process, participants can anticipate and better handle change when it faces them.

Principle #6 - Equal Opportunity to relevant information and the opportunity to participate effectively throughout the process. Unless the process is open, fair and equitable, agreement may not be reached and, if reached, may not last. To promote equal opportunity, consideration needs to be given to providing:
-training on consensus processes and negotiating skills;
-adequate and fair access to all relevant information and expertise;
-resources for all participants to participate meaningfully.

Principle #7 - Respect for Diverse Interests, values , and Knowledge
A consensus process affords an opportunity for all participants to better understand one another's diverse values, interests, and knowledge. This increased understanding fosters trust and openness which invaluably assists the participants to move beyond bargaining over positions to explore their underlying interests and needs, and to craft creative, lasting solutions.

Principle #8 - Accountability to constituencies and to the process
Mechanisms and resources for timely feedback and reporting to constituencies are crucial and need to be established. this builds understanding and commitment among the constituencies and minimizes surprises.

Principle #9 - Time Limits - Realistic deadlines are necessary
Clear and reasonable time limits for working toward a conclusion and reporting on results should be established. Such milestones bring a focus to the process, marshal key resources, and mark progress towards consensus.

Principle #10 - Implementation and effective monitoring are essential parts of any agreement.
Parties must be satisfied that their agreements will be implemented. As a result, all parties should discuss the goals of the process and how results will be handled. The support and commitment of any party responsible for follow-up is critical. A post-agreement mechanism should be established to monitor implementation and deal with problems that may arise.

PRODUCING ENVIRONMENTAL EDUCATION MATERIALS

Much energy and money is spent on the production of environmental education materials world-wide with a great deal of duplication of effort. Here are some steps to keep in mind when developing environmental education materials.

1. Absolutely the most important step in the production of any environmental education materials is to conduct some form of needs assessment research to determine the best format for materials and to ensure that the format is suitable for the target audience.

2. Do a thorough search to find out if there are already existing materials that can be used or adapted. Adapting materials is much less expensive than creating new ones.

3. Make sure that literacy levels of materials are appropriate for the audience. A common error in the production of materials is that scientific and technical language is presented in too complex a form for the audience.

4. Make sure that the materials are produced using environmentally-friendly materials (recycled paper) and methods (double-sided copying) whenever possible.

5. Team production of materials often ensures accuracy and thoroughness. The team should be composed of a technical or scientific specialist, an education specialist, content area specialists and any others who have a "stake" in the final outcome of the material.

6. Ensure that local examples and issues are used in all materials.

7. Produce the materials in such a way that they are easily updatable and with content that will not become outdated quickly. Keep facts and figures that are changing rapidly out of the content of the materials.

8. As much as possible share the materials produced with others in your network and internationally so others can adapt them.

9. Try and build in an element of fun... adults like fun!

10. Keep it as simple as possible.

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USING COMPUTERS IN ENVIRONMENTAL EDUCATION

This summary has been adapted from an article entitled *Computer-Aided Environmental Education: Problems and Promises* by W.J. "Rocky" Rohwedder, Sonoma State University, USA in the book which he editted. (Rohwedder, W.J., (1990). Computer-Aided Environmental Education. Sonoma State University. Troy: Ohio.) His article appears on pages 1-9.

Dr. Rohwedder says that "computer-aided environmental education may prove to be our most powerful educational tool for promoting everything form environmental awareness to environmental action". This field is a new and emerging field despite some problems. Some of the problems documented in earlier studies are:

1. Lack of teacher and district planning and preparation,
2. Limited teacher knowledge of recent developments and applications
3. Inadequate training which focused on how to use computers as opposed to how to teach with computers.

Computer technology includes:

- hypermedia (interactive multi-media) including laser videodiscs and CD-ROM
- Environmental simulation or modelling
- Interactive environmental software
- Environmental distance learning/action projects

Dr. Rohwedder adds some additional problem areas:

4. Unfounded euphoria - the believe that the computer will answer all of our problems
5. Equity of access - so that gaps in the quality of education services are equitable for populations of different economic status.
6. Environmental substitution -Increasing utilization of computers could promote an substitution which limits the interaction between people and the natural world. He argues that learners still must interact with the natural world.
7. Environmental impact - here he discusses the impact of making and using computers (waste materials, health exposures for workers and energy to use computers)

In spite of the problems outlined computer-aided environmental education presents a whole new set of extremely powerful tools for promoting environmental education.

ENVIRONMENTAL EDUCATION NETWORKS

This section has been summarized from an article entitled *The Roles of Networks as Tools for Environmental Education* by Dr. Walter Leal Filho, ERCEEDwhich was taken from Proceedings of a National Seminar:Networks for Environmental Education: University of Bradford, United Kingdom by Zena Murphy

Dr. Filho asserts that networks have the following benefits:

- constant up-dating on developments and events
- stimulation of co-operation among partners
- speedy dealing of emergencies where Environmental Education can play a relevant role
- strengthening of institutions
- catalysing international support/funds
- assisting in training of personnel

> "The global village where the post, telephone, telex, cable, e-mail and telefax have become important tools in enabling people to contact each other in a matter of minutes, or even seconds, although the involved parties may often be several thousand kilometres away from one another. Networks enable people who share the same interest to communicate effectively."

Dr. Filho says that research is needed to determine how networks can facilitate training. Both electronic and print networks have their own benefits and sets of problems. he suggestes the following guidelines for networks:

- do not rely too much on one communication method - try more than one to find the best means of communicating
- be aware of sources of information
- enlist international support as much as possible to keep costs down

OTHER NETWORK NEWS

This section has been summarized from an article entitled An Overview of National and International Environmental Education Networks by Zena Murphy, ERCEEDwhich was taken from Proceedings of a National Seminar:Networks for Environmental Education: University of Bradford, United Kingdom by Zena Murphy.

Zena Murphy outlines the objectives of international and national Environmental Education Networks. These are to:

- provde up-to-date information on environmental issues in all regions identified
- provide information relevant to curriculum development in Environmental Education
- respond to requests for Environmental Education information
- disseminate information on Environmental Education methodology and organization
- to act as a catalyst in Environmental Education through fostering contact among members and other agencies and initiating conferences, meetings, discussions etc.

The International Environmental Education Programme - United Kingdom

Its objectives are to facilitate the co-ordination, planning and programming of activities essential to the development of an international programme in Environmental Education. They also promote international exchange of ideas and information pertaining to Environmental Education. In order to help accomplish this an Environmental Education data bank has been established with an international directory of institutions.

The March 1994's issue of Connect contains information on a new International Environmental Education Network. The World Environmental Education Union would aim to improve the status and practice of Environmental Education and its practitioners through communication, research and influence on policy and by establishing closer co-operation with other bodies in related fields.

OTHER TRAINING WORKSHOPS

The North American Association for Environmental Education (NAAEE) has held an International Environmental Education Course in co-operation with the Smithsonian Institution's Conservation and Research Center in Front Royal, Virginia, U.S.A. The course was intended for people working for NGOs or government agencies in developing nations, interested in developing their EE programmes. The course focus was What is EE and what role can it play in solving environmental problems? How to use social marketing to enhance an EE strategy; Choosing and designing effective communications tools; Creating and using EE activities; Monitoring and evaluating EE programmes; Fund raising for EE activities. For more information contact: NAAEE Environmental Education Training Institute, 1255 23rd St., NW, Washington DC 20037, USA, Fax: (202) 884.87.01.

Authors note:

As it is hoped that this workbook will be expanded, readers are invited and encouraged to send news of other training opportunities for adult environmental education to the ICAE

WORKSHEETS

THESE WORK SHEETS CAN BE USED TO SUPPLEMENT WORKSHOP ACTIVITIES.

PLEASE FEEL FREE TO ADAPT THEM FOR YOUR OWN USE

Evaluation Form

This workshop was held for a purpose - to help you enrich your understanding and skills in environmental education in an adult learning context, and to help you develop strategies to use what you have learned in your own work. We want to take your pulse periodically and see if your personal goals in attending this Workshop were met. Also at the end of each day we'd like to know how things went and if there is anything we can do to make the next day even better. To give us an overall reading of the day, we have asked you to circle the scale which best describes your view. We are also interested in your comments -- please use the reverse side of the form if you need more space.

Scale
VG = Very Good or very clear
G = Good or OK
F = Fair or could be improved
P = Poor (discard this or fix it up)

General Organization and Logistics

A.	Meeting space	VG	G	F	P
B.	Objectives set at the beginning were met	VG	G	F	P
C.	Total time scheduled for workshop	VG	G	F	P
D.	Pre-workshop information	VG	G	F	P
E.	Workbook	VG	G	F	P

Comments

Day Two

1.	The introductory session made me feel relaxed, comfortable and anxious to contribute to the workshop.	VG	G	F	P
2.	The objectives set for the day were clear.	VG	G	F	P
3.	The role of the workshop leader was clear.	VG	G	F	P

Regional case studies

4.	The length of time for each case study was sufficiently.	VG	G	F	P
5.	The case studies contributed to my understanding of various national policies.	VG	G	F	P

6. The case studies suggested practical strategies that can be used in my own work situation. VG G F P
7. The case studies outlined practical strategies fro networking internationally. VG G F P

Comments about this day

Day Three

1. Working on a common vision statement was a worthwhile activity VG G F P
2. I understand the treaty on environmental education better than I did before I came to this workshop. VG G F P
3. Identifying barriers to the implementation of environmental education revealed several areas of commonality internationally VG G F P
4. This was a useful exercise
5. The discussed of strategies to overcome barriers was pertinent and useful VG G F P
6. The opportunity to interact with others in small group situation was worthwhile VG G F P

Comments about this day

Day Four

1. Can you apply what you are learning to your day to day work at home? VG G F P
2. Does the workshop material covered so far link well with other social and economic issues you deal with on a regular basis? VG G F P
3. Did you enhance your understanding of environmental issues? VG G F P
4. Did your understanding of adult education methodology improve? VG G F P
5. Did the handouts support the presentation? VG G F P
6. Was the length of time allotted to this module sufficient? VG G F P
7. Did the afternoon session help you develop approaches that you can take home and use? VG G F P

Comments about this day

Day Five

1. Has your understanding of the production and selection of EE resource improved? VG G F P
2. Was the length of time allotted adequate? VG G F P
3. Do you feel that you understand the criteria for producing EE resources? VG G F P
4. Can you use and apply this criteria to your work at home? VG G F P

Overall

1. Did the group work help you understand the material? VG G F P
2. Can you apply the knowledge you have gained from this workshop to your day to day work? VG G F P
3. Was the pre-workshop assignment a worthwhile exercise for you? VG G F P
4. Did the regional case studies provide you with insights into understanding EE issues internationally? VG G F P
5. Were the evening activities useful in helping you to develop network linkages and share information? VG G F P
5. Was the workshop leader useful in her role? VG G F P
6. Was the workbook useful? VG G F P
7. Will the workbook be useful when you return home? VG G F P
8. Did you have fun? VG G F P

9. What else could be added to the workbook to make it even more useful? ______________________________

____

____

____

10. What would you like to see added to this workshop? ______________________

____

____

____

____

11. What areas of the workshop could be improved? ______________________

____

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____

____

12. Do you feel ready to put on a training workshop when you return home? Yes___ no___
13. What other information would have made your job easier?____________________________
____
____
____

14. Is there anything else you would like to tell us?____________________________
____
____
____
____
____
____

Please make any additional comments and/or suggestions to help us evaluate this workshop.
Your feedback is very important and will be used to help design further workshops.
Thank you

PRE-WORKSHOP NEEDS FORM

THIS FORM WILL NOT BE HANDED IN AND IS FOR YOUR EYES ONLY. *PLEASE USE THIS FORM AS A REFERENCE POINT WHEN YOU FILL OUT THE EVALUATION FORM AT THE END OF THE WORKSHOP*

1. I came to this workshop because I want to accomplish the following:

2. Questions I would like answered are:

3. I will be happy with my contribution if:

4. This workshop will be successful if:

NOTES ON CASE STUDY PRESENTATIONS.

Make notes here about other case study presentations and record information which will be useful for you to take home with you. **Take special note of information that is action-oriented and that will give direction to increased action on your part.**

What are the differences/ commonalities in the case study presentations?

A BRAINSTORMING SHEET

Differences?

Commonalities?

How can the differences be overcome to encourage networking?

How can these commonalities be used to further develop networks and sharing of information?

THE TREATY ON ENVIRONMENTAL EDUCATION FOR SUSTAINABLE COMMUNITIES

A BRAINSTORMING SHEET

Summarize what this treaty says to you in one sentence:

What is my vision for how this treaty be implemented?

What are the action steps that must be out into place in order to see this treaty implemented?

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

What is the first thing you are going to do when you get back home about the implementation of the treaty?

OBSTACLES TO SUCCESS

A BRAINSTORMING SHEET

The following are obstacles that will make it difficult for the treaty to be successfully implemented

____

____

____

____

____

____

The top 5 obstacles this group picked are:

1.

2.

3.

4.

5.

ACTION PLANNING

You may use the following information as a guide for action planning .

What is an Action Plan?

An action plan is a series of actions required to carry out new directions or programs. To start an action plan you must have a strategic direction. In your action plan you should address the following:

- Specific objective (s) for overcoming the obstacles
- Specific actions needed to meet objective(s)
- If there are more than 10 actions , organize them in specific clusters that have a similar focus
- Make suggestions on time and cost

Suggestions for Group Work

- Brainstorm briefly on specific objectives for overcoming obstacles
- Organize the thoughts of your group
- Name the specific objective(s) to be worked on)
- Agree on the above
- Discuss action steps
- Discuss implications of these steps in terms of time and money

APPLYING WHAT YOU'VE LEARNED

Some questions to think about........

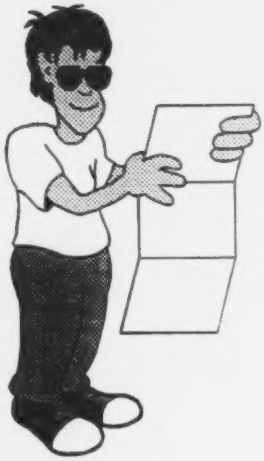
How can you apply what you have learned from the obstacles and strategies to your work in your own country?

What strategies can you use?

What modifications do you need to make?

Who would be a good person to talk this over with when you return home? (make a list of commitments to yourself now - by the time you return home you may have forgotten some of the key actions you intend to make)

MY TO DO LIST



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RESOURCE FAIR NOTES

Use this page to note important and useful resources that are not included in the workbook.

ENVIRONMENTAL ISSUES

A BRAINSTORMING SHEET

The top five most important environmental issues in my country are:

What kinds of adult environmental education would be most appropriate for dealing with these issues?

METHODS FOR ADULT EDUCATORS

A BRAINSTORMING SHEET

What are the methods that I most commonly use?

What other methods can I use?

What other models might be appropriate?

How can I apply what I have learned to my case study?

Are you getting the information you need?

Before you came to this workshop you identified several learning needs. Are your needs being met? What else do you still need to find out? Use this page to jot down some other questions that have come to mind that you would like to bring up in group discussions.

SELECTION AND PRODUCTION OF EE MATERIALS AND RESOURCES

A BRAINSTORMING SHEET

The criteria for selecting which EE resources are appropriate should be:

The criteria for producing EE materials should be:

DESIGNING PROGRAM OBJECTIVES

After you go home we hope that you will conduct training programs in adult environmental education. Take a few minutes now and jot down what skills the graduate of an adult environmental education training program should have:

1.
2.
3.
4
5.
6.
7.
8.
9.
10.

DESIGNING PROGRAM CONTENT

A BRAINSTORMING SHEET

Critical content necessary in the design of a national training program.

SUGGESTED FORMAT FOR TRAINING PROGRAM

SUGGESTED METHODS/TECHNIQUES FOR TRAINING PROGRAM

SUGGESTED EVALUATION TECHNIQUES FOR TRAINING PROGRAM

PUTTING IT ALL TOGETHER

Design your own program here. Use other people in the group as resources. Talk it up! Share ideas!

Target group/groups:

Needs of target group/groups:

Objectives of program:

Plan Design (methods, techniques, and content plus resources required):

Plan Implementation (where, who by, and how):

WHERE DO WE GO FROM HERE?

It is great to have had this workshop, but what will happen after we all leave here? How do we know this workshop will change anything? How do we continue the process? What should happen tomorrow? Next week? Next year? How do we ensure that it will happen? What are your suggestions?

What should happen after this workshop?

____

____

____

____

____

How do we ensure that this happens?

____

____

____

____

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____

____

Useful magazines, newsletters and journals (not a complete listing of everything available, but a start!)

Alternatives: Perspectives on Society, Technology, and Environment. Its intent is to provide critical review of environmental issues and especially to reflect a Canadian perspective. Faculty of Environmental Studies, University of Waterloo, Waterloo, Ontario N2L 3G1 Canada.

■

The Bulletin: Quarterly Review of Progress Towards Sustainable Development (formerly: Brundtland Bulletin). Centre for Our Common Future. This quarterly publication of the Geneva-based Centre for Our Common Future provides an overview of new developments and initiatives in the area of environmental education and sustainable development.

■

Connect: UNESCO-UNEP Environmental Education Newsletter. This newsletter has excellent information, and is particularly useful for keeping abreast of developments in a variety of countries. It also provides a bibliography of the UNESCO International Environmental Education Programme. Available free from UNESCO, 7, Place de Fontenoy, 75700 Paris, France.

■

Our Planet: The Magazine of the United Nations Environment Programme.
Contact UNEP-PO Box 30552, Nairobi. Kenya

■

Pachamama: Newsletter of the ICAE Learning for Environmental Action Programme.

■

The Journal of Environmental Education, A professional journal for environmental educators on current research in the field.
Heldref Publications, 4000 Albemarle St., N.W. Washington, D.C. 20016

■

The International Journal of Environmental Education and Information, Managing Editor, Environmental Education and Information, Environment Resources Unit, Peel Bldg., University of Salford
Salford M5 4WT,United Kingdom

■

Australian Journal of Environmental Education, School of Education
Deakin University, Geelong, Victoria 3217, Ian Robottom, Editor

■

Green Teacher, 95 Robert Street
Toronto, Ontario, Canada M5S 2K5

■

Buzzworm, The Environmental Journal - A publication reporting on national and international environmental issues.
Buzzworm, P.O. Box 6853, Syracuse, NY 13217

■

Environmental Education Research - publishes three types of article based on research and development activities relating to the process of environmental education.
Chris Oulton, Editor, School of Education
University of Bath, Claverton Down
Bath BA2 7AY,UK
Telephone: (0225) 826826,Fax: (0225)

826113

■

Environment and Behaviour - An interdisciplinary journal on the influence of the physical environment on human behaviour. Sage Publications, Inc.
2455 Teller Road, Newbury Park, CA 91320

■

Convergence, International Council for Adult Education, 720 Bathurst St.,.Suite 500, Toronto, Ontario, Canada, M5S 2R4
Convergence is reproduced and distributed in microform copies and in article/issues by:
University Microfilm International
300 North Zeeb Road, Ann Arbor, Michigan, USA, 48106
Micromedia Limited (Canada Education Index),20 Victoria Street,Toronto, Ontario Canada M5C 2N6, Phone: 1-800-387-2689

■

Journal of Outdoor Education - A journal for outdoor educators. Journal of Outdoor Education, Northern Illinois University
Dept. of Outdoor Teacher Education
Taft Field Campus, Box 299
Oregon, IL 61061

■

World Watch - A magazine of Worldwatch Institute that serves as a source of information for concerned citizens, with articles describing and analyzing environmental issues. WorldWatch Institute P.O. Box 6991,Syracuse, NY 13217-9942
Also available: State of the World - "A Worldwatch Institute report on progress toward a sustainable society." Well researched reports compiled in a book format. Published every year.

■

Environmental Education Action Network Newsletter is published by the Curriculum Development Section of the Seychelles Ministry of Education and Culture, with the intention of `promoting EE by establishing strong lines of communication and co-operation between concerned organizations and individuals'. English/French/Kreol) EE Action Network Newsletter, ATT: Michele Martin, Science Unit, CDS, Ministry of Education and Culture, P.O. Box 48, Mont Fleuri, Seychelles.

■

Mâsarâgaba is the name of a Central African environmental newsletter published by the Environment and Development Research Unit (Geography Department) of the University of Bangui. The No. 7 issue (March-December 1993) contains a study on Central African ecosystems; articles on Central african forest resource policy, Industrial forest exploitation in Central african Republic, Forest exploitation for domestic purposes, etc.; local, African and worldwide news as well as columns for advice, views, humour. Further information from: University de Bangui, Faculty des letters et sciences hominess, Département de géographie, Cellule de recherche environnement et développement, B.P. 1037, Bangui, République Centrafricaine. Tel: 61.20.00, Fax: 61.78.90.

A bibliography of adult environmental education materials

Items marked with a * are held in the library of the International Council for Adult Education, 720 Bathurst Street, Suite 500, Toronto, Ontario, Canada, M5S 2R4
For more information on these resources or other adult education resources please contact: Eva Kupidura, Librarian, Phone: (416) 588-1211, Fax: (416) 588-5725, e-mail: icae@web.apc.org.

*Adult Education and Development, no.40 (1993). German Adult Education Association.

*Adult Education and Development, no.37 (1991): 216p. German Adult Education Association.

*Adults Learning, vol.4, no.8 (April 1993). The National Institute of Adult Continuing Education (England and Wales).

African Association for Literacy and Adult Education. Sub-regional workshop on environmental education through adult education. Report of workshops held at Port Loko, Sierra Leone and Chitungwiza, Harare, Zimbabwe.

*Alfonso, Ave Cleto.ed. Work-Book for Orientation Programmes on Environmental Sciences. New Delhi, India: GOA Research Institute for Development, 1988.

Andrews, E., Camozzi, A., Puntennay, P. Action Models in Adult Environmental Education. 1994. North American Association for Environmental Education. Troy, Ohio.

*ASPBAE Courier no.55. Asian-South Pacific Bureau of Adult Education.

*Community Workshops for the Environment. Ottawa, Canada: Harmony Foundation of Canada, 1991.

*Conceptual issues in environmental education. Edited by Shoshana Keiny and Uri Zoller. American University Studies, Series XIV Education, Vol.28. New York: Peter Lang, 1991.

*Desde Río hacia las sociedades sustentables y de responsabilidad global. Cuadernos para una sociedad sustentable. México: Fundación Friedrich Ebert; Grupo ded Estudios Ambientales, A.C., 1992. In Spanish.

* Diezmos, Lilia M. "Curriculum development in Environmental Education in the Philippines."

International Educator 3, no.3 (1985):20-28.

*Esteva Peralta, Joaquín. Ambientalismo y educación. Hucia una educación popular ambiental en América Latina. CEAAL, Red de Educación Popular y Ecología, 1992. In Spanish. Paper presented at the Congreso Iberoamericano de Educación Ambiental (Latin American Congress for Environmental Education), Guadalajara, México, 22 to 27 November, 1992. Also from the same Congress the resolutions (in Spanish).

*Gender and environment: lesson from social forestry and natural resource management: a sourcebook. Edited by Sarah T. Warren. Aga Khan Foundation Canada, 1992.

*International Environmental Education Programme, UNESCO-UNEP. Glossary of environmental education terms. Paris: UNESCO, 1983. A bilingual (English and Russian) listing of terminology related to environmental education.

*Learning for the future: adult learning and the environment: a NIACE policy discussion paper. Leicester: NIACE, April 1993.

*Malcolm, Steve. Education for ecologically sustainable development: an issue paper. Victorian Environmental Education Council occasional paper no.1. Melbourne: The Council and Australian Association for Environmental Education, 1992.

Mrazek, Rick editor. 1993. Alternative Paradigms in Environmental Education Research. North American Association for Environmental Education. Troy, Ohio.

*Pflug, Bernd et al. "The Project-Method in Environment Education." International Educator 3, no. 2&3 (1985):9-16. A discussion of the project method in environmental education through a close examination of two projects that took place in a high school in India in 1982/83.

*Pope, Stephen, Mike Appleton and Elizabeth-Anne Wheal. The green book: the essential A-Z guide to the environment. London: Hodder and Stoughton, 1991.

*Rugumayo, Edward B. et al, Environmental Education through Adult Education: A Manual for Adult Educators, Instructors, Teachers and Social Extension Workers. Nairobi, Kenya: African association for Literacy and Adult Education, 1987.

*Sourcebook on sustainable development. Winnipeg, Manitoba: International Institute for Sustainable Development, 1992.

*The Tribune: A Woman and Development Quarterly. Newsletter 47, September 1991. Newsletter 49, February 1993.

*The ECO-ED resources catalogue. Toronto: The World Congress for Education and Communication on Environment and Development (ECO-ED), 1993.

*The Earth Summit's agenda for change: a plain language version of Agenda 21 and the other Rio agreements. Written by Michael Keating. Geneva: Centre for Our Common Future, 1993.

*Tohmé, Georges. Cultural development and environment. Prepared for the International Bureau of Education. Paris: UNESCO, 1992.

*Women and the environment. Prepared by Annabel Rodda. Women and world development series. London: Zed Books, 1991.

*Workplace Guide: Practical Action for the Environment. Ed. Michael Bloomfield and Louise Ward-White. Ottawa, Canada: Harmony Foundation of Canada, 1991.

The entire set of "green booklets" In the UNESCO-UNEP International Environmental Programme. Environmental Education Series. Available free to institutions, UNEP, P.O. Box 30552, Nairobi, Kenya. These books cover a wide range of environmental education topics and are full of interesting and worthwhile information.

Author's Note

There was limited time available to prepare this document. A further workbook should include an extensive environmental education and adult education bilbliography. Readers are invited to send publication names to the ICAE.

ENVIRONMENTAL EDUCATION CENTRES AND INFORMATION

European Research and Training Centre on Environmental Education (ERTCEE)
Department of Environmental Science
University of Bradford
West Yorkshire, BD7 1DP UK
TEL 0274 385259

Some examples of programming at the centre
In 1994 ERTCEE hosted the "Preparation, Execution and Evaluation of Environmental Education Projects in Commonwealth Countries." The training course, funded by the European Union and commonwealth Secretariat, was supported by a number of UK and international agencies, particularly the British Council, UNESCO and The Commonwealth of Learning. Over 20 participants from Africa, Asia, Latin America and the Caribbean acquainted themselves with the structure of environmental education projects, methods of project execution and evaluation.

Publications of the ERTCEE
1.Environmental Education in Europe: from theory to practice
A book on European environmental education practices is currently being edited by W. Leal Filho and Frances McDermott. The book will contain on-going programmes and initiatives, contributions to the dissemination of good and environmental education practices across the continent. Another publication is being prepared by W. Leal Filho and Z. Murphy, describing environmental education initiatives in developing nations. Further information from ERTCEE.

2.Communication Environmental Risks: a workshop report
This publication, which is essentially a report of the training workshop "Communication Environmental Risks: Environmental Education as tool for Disaster management" held in Dhaka, Bangladesh, in May 1994, is now available at a nominal charge. contact ERTCEE for details.

3.Networks and Environmental Education
The report of the national seminar on networks and environmental education held in Bradford in May of this year is now available. Prepared by Z. Murphy, the report contains a summary of the presentations and discussions which were held by UK and European specialists. It also presents the outline of a "model" environmental education network and the list of UK and foreign specialists who attended it. Copies available, at a nominal fee, form ERTCEE.

Council for Environmental Education

The Council for Environmental Education (CEE) is the national body for the co-ordination and promotion of environmental education in England, Wales and Northern Ireland.

CEE acts as the focal point for the environmental education movement, representing and working in co-operation with over 80 national organisations that make up its membership. CEE also works closely with government departments, industry and over 80 local authorities with the aim of influencing education policy and practice through these partnerships.

For further information about the Building Support for Environmental Education programme, please contact:

Christine Midgley
Head of Information
Council for Environmental Education
University of Reading, London Road
Reading RG1 5AQ
England

Tel: 0734 756061

Other Information to note:

An international network in environmental education is being formed. The network is based in Greece and a first newsletter in french has been produced. For more information contact:

International Network for Environmental Education
Yoland Ziaka, Coordinator
3rd Septembriou, 11
10432 Athens, Greece
tel 30-1-52-38.281
fax 30.1.52.45.631

Author's Note:

There is an urgent need to coordinate all networking and organizations. At this point in time international coordination in environmental education is very scattered. Readers are invited to send information on networks and international organizations to the ICAE.

APPENDIX ONE

TREATY ON ENVIRONMENTAL EDUCATION FOR SUSTAINABLE SOCIETIES AND GLOBAL RESPONSIBILITY

Treaty on Environmental Education for Sustainable Societies and Global Responsibility

Introduction

We consider that environmental education for equitable sustainability is a continuous learning process based on respect for all life. Such education affirms values and actions which contribute to human and social transformation and ecological preservation. It fosters ecologically sound and equitable societies that live together in interdependence and diversity. This requires individual and collective responsibility at the local, national and planetary level.

We consider that preparing ourselves for the required changes depends on advancing collective understanding of the systemic nature of the crises that threaten the world's future. The root causes of such problems as increasing poverty, environmental deterioration and communal violence can be found in the dominant socio-economic system. This system is based on over-production and over-consumption for some and under-consumption and inadequate conditions to produce for the great majority.

We consider that inherent in the crisis are an erosion of basic values, and the alienation and non-participation of almost all individuals in the building of their own future. It is of fundamental importance that the world's communities design and work out their own alternatives to existing policies. Such alternatives include the abolition of those programmes of development, adjustment and economic reform which maintain the existing growth model with its devastating effects on the environment and its diverse species, including the human one.

We consider that environmental education should urgently bring about change in the quality of life and a greater consciousness of personal conduct, as well as harmony among human beings and between them and other forms of life.

Some Principles of Environmental Education for Equitable and Sustainable Societies

1. Education is the right of all; we are all learners and educators.
2. Environmental education, whether formal, non-formal or informal, should be grounded in critical and innovative thinking in any place or time, promoting the transformation and construction of society.

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3. Environmental education is both individual and collective. It aims to develop local and global citizenship with respect for self-determination and the sovereignty of nations.
4. Environmental education is not neutral but is value-based. It is an act for social transformation.
5. Environmental education must involve a holistic approach and thus an inter-disciplinary focus in the relation between human beings, nature and the universe.
6. Environmental education must stimulate solidarity, equality, and respect for human rights involving democratic strategies and an open climate of cultural interchange.
7. Environmental education should treat critical global issues, their causes and inter-relationships in a systemic approach and within their social and historical contexts. Fundamental issues in relation to development and the environment, such as population, health, peace, human rights, democracy, hunger, degradation of flora and fauna, should be perceived in this manner.
8. Environmental education must facilitate equal partnerships in the processes of decision-making at all levels and stages.
9. Environmental education must recover, recognize, respect, reflect and utilize indigenous history and local cultures, as well as promote cultural, linguistic and ecological diversity. This implies acknowledging the historical perspective of native peoples as a way to change ethnocentric approaches, as well as the encouragement of bilingual education.
10. Environmental education should empower all peoples and promote opportunities for grassroots democratic change and participation. This means that communities must regain control of their own destiny.
11. Environmental education values all different forms of knowledge. Knowledge is diverse, cumulative and socially produced and should not be patented or monopolized.
12. Environmental education must be designed to enable people to manage conflicts in just and humane ways.
13. Environmental education must stimulate dialogue and cooperation among individuals and institutions in order to create new lifestyles which are based on meeting everyone's basic needs regardless of ethnic, gender, age, religious, class, physical or mental differences.
14. Environmental education requires a democratization of the mass media and its commitment to the interests of all sectors of society. Communication is an inalienable right and the mass media must be transformed into one of the main channels of education, not only by disseminating information on a egalitarian basis, but also through the exchange of means, values and experiences.
15. Environmental education must integrate knowledge, skills, values, attitudes and actions. It

should convert every opportunity into and educational experience for sustainable societies.

16. Education must help develop an ethical awareness of all forms of life with which humans share this planet, respect all life cycles and impose limits on humans' exploitation of other forms of life.

Plan of Action

The organizations that sign this Treaty will implement policies to:

1. Turn the declarations of this Treaty and other Treaties produced by the Conference of Citizens' Groups during the RIO 92 process, into documents for use in formal education systems and in education programmes of social movements and social organizations.
2. Work on environmental education for sustainable societies together with groups that draft other Treaties approved during RIO 92.
3. Make comparative studies of the treaties of citizens' groups and those produced by the United Nations Conference on Environmental and Development (UNCED) and use the conclusions in educational activities.
4. Work on the principles of this Treaty from the perspective of local situations, necessarily relating them to the state of the planet, creating a consciousness for transformation.
5. Promote knowledge, policies, methods, and practices in all areas of formal, informal and non-formal environmental education and for all age groups.
6. Promote and support training for environmental conservation, preservation and management, as part of the exercise of local and planetary citizenship.
7. Encourage individuals and groups to take positions, and institutions to make policies, that constantly review the coherence between what is said and what is done, as well as the values of our cultures, traditions and history.
8. Circulate information about people's wisdom and memory, and support and inform about appropriate initiatives and technologies in relation to the use of natural resources.
9. Promote gender co-responsibility in relation to production, reproduction and the maintenance of life.
10. Stimulate and support the creation and strengthening of ecologically responsible producers' and consumers' associations, and commercial networks, that provide ecologically sound alternatives.
11. Sensitize populations so that they establish Peoples' Councils for Environmental Management and Ecological Action to research, discuss, inform and decide on environmental problems and policies.

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12. Create educational, judicial, organizational and political conditions to guarantee that governments allocate a significant part of their budgets to education and the environment.
13. Promote partnership and cooperation among NGOs, social movements, and the UN agencies (UNESCO, UNEP, FAO, and others) at national, regional and international levels to jointly set priorities for action in education environment and development.
14. Promote the creation and strengthening of national, regional and international networks for joint action between organizations of the South, North, East and West with a planetary perspective (e.g. foreign dept, human rights, peace, global warming, population, contaminated products).
15. Ensure that the media becomes an educational instrument for the preservation and conservation of natural resources presenting a plurality of views and reliable and contextualized information; and stimulate the broadcasting of programmes generated by local communities.
16. Promote an understanding of the causes of consumerist behaviour and act to change practices and the systems that maintain them.
17. Search for self-managed, economically and ecologically appropriate alternatives of production which contribute to an improvement in the quality of life.
18. Act to eradicate sexism, racism and any other prejudices, as well as contribute to the promotion of cultural diversity, territorial rights and self-determination.
19. Mobilize formal and non-formal institutions of higher education in support of teaching, research and extension towards the community in environmental education, and the creation, in each University, of interdisciplinary centres for the environment.
20. Strengthen social organizations and movements in order to enhance the exercise of citizenship and an improvement of the quality of life and the environment.
21. Assure that ecological organizations popularize their activities and that communities incorporate ecological issues in everyday life.
22. Establish criteria for the approval of education projects for sustainable societies, discussing social priorities with funding agencies.

Coordination, Monitoring and Evaluation Systems

All signatories of this Treaty agree to:

1. Distribute and promote the Treaty on Environmental Education for Sustainable Societies and Global Responsibility in all countries, through joint campaigns by NGOs, social movements and others.
2. Stimulate and create organizations and groups of NGOs and social movements to initiate, implement, follow, and evaluate the elements of this Treaty.
3. Produce materials to publicise this Treaty and its unfolding into educational action, in the form of texts, educational materials, courses, research, cultural events, media programmes, fairs of popular creativity, electronic mail, and other means.
4. Form an international coordination group to give continuity to the proposals in this Treaty.
5. Stimulate, create and develop networks of environmental educators.
6. Ensure the 1st Planetary Meeting of Environmental Education for Sustainable Societies is held within three years.
7. Coordinate action to support social movements which are working for improving the quality of life, extending effective international solidarity.
8. Foster links between NGOs and social movements to review their strategies and programmes on environment and education.

Groups to be Involved

This Treaty is aimed at:

1. Organizations of social movements - ecologist, women's, youth, ethnic, farmers', union, neighbourhood, artistic groups, and others.
2. NGOs committed to grassroots social movements.
3. Professional educators interested in establishing programmes related to environmental issues in formal education systems and other educational activities.
4. Those responsible for the mass media who are ready to accept the challenge of openness and democracy, thus initiating a new concept of mass communication.
5. Scientists and scientific institutions that take ethical positions and are sympathetic to the work of social movements and organizations.
6. Religious groups interested in working with social organizations and movements.
7. Local and national governments able to act in tune and in partnership with the aims of this Treaty.

8. Business people committed to working within a rationale of recovery, conservation and improvement of the environment and the quality of life.
9. Alternative communities that experience new lifestyles in harmony with the principles and aims of this Treaty.

Resources

All signatories of this Treaty are committed to:

1. Allocating a significant part of their resources to the development of educational programmes related to an improvement of the environment and quality of life.
2. Demanding that governments allocate a significant percentage of Gross National Product to supporting programmes of environmental education in all sectors of public administration, with the direct participation of NGOs and social movements.
3. Proposing economic policies that stimulate business to develop and apply appropriate technology and create environmental education programmes for the community, and as part of personnel training.
4. Encouraging funding agencies to prioritize and allocate significant resources to environmental education and ensure its presence in projects they approve whereever possible.
5. Contributing to the formation of a cooperative and decentralized global banking system for NGOs and social movements that will use part of its resources for educational programmes and at the same time be an exemplary exercise in using financial resources.

Background to the Treaty

The aim of the Treaty on Environmental Education for Sustainable Societies and Global Responsibility is to elicit the commitment of all active and interested people to a series of principles.

The process that led to the drafting of this Treaty can be described in the following stages:

I. The elaboration of a Charter on Environmental Education in four languages, with the subsequent collection and systematization of comments improving and modifying it from five continents between August 1991 and March 1992.

BEST COPY AVAILABLE

II. In March 1992, the then Charter on Environmental Education was introduced at the 4th Preparatory Committee (PrepCom) in New York where it was redrafted by the NGO Education Working Group, which expanded it not only in terms of its concepts but also in its format and the composition of the group responsible for its development. It thus took on the characteristics of a Treaty, an international agreement to be signed by individuals and organizations concerned with education.

Guidelines were given by the NGO Coordination Group for UNCED for the drafting of documents that contained the following sections: Introduction, Principles, Plan of Action, Coordination and Monitoring Mechanisms, Groups to be Involved, and Resources. The first two sections were discussed in New York.

III. In April/May 1992 the texts drafted in New York were once again circulated internationally, thereby completing the drafts of the other four sections.

Finally, this text was translated into four languages and printed for discussion in the Journey on Environmental Education in the context of RIO 92.

IV. During the Journey in June 1992 a last stage in the drafting of the text led to a final version after 14 hours of discussion in plenary sessions and workshops, and many hours of incorporating and editing the additional proposals into the text. This version was then translated into the four languages adopted by the International NGO Forum.

The official launch of the Treaty took place on 7 June 1992, during an Eco-Carnival Parade with the participation of 2000 children from the Samba School, Flowers for Tomorrow, Brazil.

On 9 June the Treaty was presented to the plenary session of the International NGO Forum, after which the group met to discuss specific points which still required consensus. Some additional comments were made in the plenary and are included in an annex, reflecting the start of a new stage of implementing the Treaty which began in Rio. The process then also started to collect the signatures of those supporting and committed to the implementation of the Treaty.

V. On 12 June the Treaty was accepted in a plenary meeting by the International Forum of NGOs and Social Movements.

An international commission was set up to implement the treaty.

APPENDIX TWO - WORKSHOP QUESTIONNAIRE

FROM WORDS TO ACTION

Learning for Environmental Action Programme

International Council for Adult Education

Philippines Workshop, December, 1994

Pre- Workshop Assignment Materials

PREPARED BY ECOLOGIC, SEPTEMBER 6, 1994

WORKSHOP ASSIGNMENTS

The attached workshop assignments have been developed to ensure that the time spent at the December Philippines workshop is maximized. In order to ensure that the workshop is relevant, practical, and effective we would ask you to complete the materials and return them promptly to:

International Council for Adult Education
Attention: Peter Basel
720 Bathurst St. Suite 500
Toronto, Ontario, Canada
M5S 2R4
phone 416-588-1211
fax - 416-588-5725
Email ICAE@web.apc.org
Please note that if you are mailing materials that you must allow for a minimum of three weeks.

ALL WORKSHOP ASSIGNMENTS MUST BE RECEIVED BY NOVEMBER 1, 1994.

The pre-workshop assignment is in the form of the following:

A. A personal profile questionnaire
B. A professional profile with a current C.V. attached
C. A country profile questionnaire
D. Information Background Case Study

A. PERSONAL PROFILE - Please tell us a little bit about yourself!

Name____

Organization____

Address____

____

Country____

Phone________________ Fax________________ Email________________

Job Title____

Male ____ Female____ Citizenship______________________________

Special Dietary Needs _________________________________

____

Important Medical Information ____________________________

____

1. What are your personal learning goals which you would like to accomplish at the workshop in the Philippines?

____

____

____

____ 2.

What would ensure that this workshop is successful?______________________

____

____

____

3. What skills and talents will you bring with you to share with us at the workshop? (Please don't be shy and please tell us if you have any special talents like music, dance, or other performing arts that you might be willing to share!)

4. Is there anything else that you would like to tell us about the workshop agenda and planning? We are interested in making sure that this workshop is successful so please tell us anything that you might feel would be useful. Feel free to use the rest of this page.

B. PROFESSIONAL PROFILE

Please attach a one-page C.V. to this part of the questionnaire.

1. Please indicate what type of organization you work for.

Government ______ federal/national _____ provincial/state ______ municipal ______

Educational institution ________ University_____ College_____ other (please indicate)_______

Industry_______ what kind?____

Library______ Consultant_________

Non-governmental organization________ (please briefly explain the mission of the organization)

____

2. Please briefly describe what type of work you do (check as many as are applicable).

Teaching __________

Administration ______

Fund Raising________

Program design________

Facilitation___________

Preparation of curriculum materials ________

Other (please indicate)____

3. What kinds of adult environmental education programs have you developed or are involved in?

Films/videos _____

Booklets _____

Posters _____

Theatre _____

Field trips _____

Lectures _____

Fairs, community events _____

Workshops _____

Credit courses _____

Non-credit courses _____

Radio/TV programming _____

Study Circles _____

Other - please specify ____

4. During the Philippine workshop there will be an opportunity for you to display samples of your work so that we can begin the process of sharing ideas and resources. Will you be bringing any such materials to the Philippines? Yes_____ no_____ not sure _____

If YES, what would you be bringing (in order to plan space)?

____

5. Please list the credentials you hold in adult education.

Degree _____ Level: Bacc.____ Masters_____ PHD_____

Certificate______

Seminars/Workshops______________________________________

Other (please identify)______________________________________

6. Please rate your knowledge levels about the following topics using the following key.

1= I know nothing at all **2= I know a little bit** **3= I know an average amount**

4= I know quite a bit **5= I know a lot**

A. Designing a needs assessment	1 2 3 4 5
B. Analyzing a needs assessment	1 2 3 4 5
C. Setting program objectives	1 2 3 4 5
D. Designing programs	1 2 3 4 5
E. Facilitation	1 2 3 4 5
F. Presentation Skills	1 2 3 4 5
G. Program Evaluation	1 2 3 4 5
H. General principles of adult education	1 2 3 4 5
I. General principles of environmental education	1 2 3 4 5
J. General principles of sustainable development	1 2 3 4 5
K. Conducting environmental audits	1 2 3 4 5

L. Environmental health issues	1 2 3 4 5
M. Global Environmental issues and trends	1 2 3 4 5
N. Environmental Policy Formulation	1 2 3 4 5
O. International Networking	1 2 3 4 5

7. Are you familiar with the following programs and documents?

ICAE Treaty on Environmental Education for Sustainable Societies & Global Responsibility_____

UNESCO-UNEP International Environmental Education programme ________

UNESCO manuals on environmental education __________

UNESCO manual on non-formal environmental education_________

African Association for Literacy and Adult Education Workshop booklets_________

Connect Newsletter_________

NAAEE Monograph on Adult Environmental Education_________

8. Please indicate any experience you have had working with the ICAE Treaty on Environmental Education____

____

____

9. Please list any other International Adult Environmental Education materials/programs not listed here that you are aware of____

____

____

____

10. Please list the professional environmental education organizations to which you belong (if applicable)?______________________________

______________________________ 11.

Please identify the journals or newsletters related to environmental education to which you subscribe (if applicable).______________________________

12. Please indicate what experience you have (if any) with international networking with regards to environmental education.______________________________

13. Please indicate what you hope to accomplish at the workshop with regards to international networking.______________________________

C. COUNTRY PROFILE - Please tell us a little about your country.

1. Please write a brief paragraph describing the status of adult environmental education in your country. If you are you aware of a National Environmental Education Strategy or plan in your country, please tell us a little about it - if it is not too lengthy, please attach a copy of the strategy to this questionnaire)

2. What are the key environmental issues facing your country?

3. What specific local environmental issues are you dealing with?

4. Please name the key target groups for adult environmental education in your country.

5. Please tell us a little about how local, provincial (territorial, state), and federal (national) legislation regarding environmental issues are developed?

6. Please indicate how your adult environmental education programs are funded and comment on funding availability for such programming. ______________________________

7. Please describe current environmental networks in your country. ______________________________

8. Please list some examples of existing adult environmental education resources that have been produced in your country.

9. What adult environmental education resources or materials do you use most often?__________

____

____

____

____

10.. Please tell us anything else which you think is relevant related to adult environmental education and your particular situation (barriers, obstacles, opportunities, successes etc.). Attach an extra sheet if necessary.

D. INFORMATION BACKGROUND CASE STUDY - information sharing

One of the most important aspects of the workshop will be relating workshop sessions to your geographic area and your current professional challenges. Another important aspect of the workshop is to share information with other participants about opportunities and obstacles that you face in adult environmental education. In order to facilitate the exchange of information you are being asked to write a 3-6 page background case study for presentation at the workshop in December. This paper should be sent in disk (WP.5.1) (if possible) and/or written form with the preceding questionnaires.

At the workshop you will be asked to make a brief (15 minute) oral presentation which summarizes the main points of your case study. This oral presentation should be as visual as possible using overheads or other audio-visual materials. Your background paper should be about an adult environmental education "problem" or success story that is relevant to your current, everyday work and geographical location. The purpose of the case study is to help you share information with other participants and also to highlight an adult environmental education item that is of some significance or importance to you. It should not be necessary to conduct any research to complete your background paper. Please write about your own area and your own work.

This paper is not meant to be an academic and polished document. Please concentrate on information sharing; use point form if you prefer. The most important thing is to pick a problem that you already have to solve and that you expect to learn the most from. Another alternative would be to write about an important success story in environmental education that would be of interest to other participants. Your "problem" or success story could relate to:

1. How you have used the ICAE Treaty
2. A special program of your organization
3. An adult environmental education resource material
4. An adult environmental education network
6. An adult environmental education training workshop
7. An adult environmental education needs assessment or questionnaire
8. An environmental issue of importance to you or your area

THESE ARE MEANT TO SERVE AS EXAMPLES ONLY. THE MOST IMPORTANT THING FOR YOU TO DO IS TO WRITE ABOUT YOUR OWN WORK CHALLENGES. PLEASE WRITE ABOUT SOMETHING THAT IS REAL AND RELEVANT TO YOU AND WHICH DOES NOT REQUIRE EXTENSIVE RESEARCH!!!

CASE STUDY OUTLINE

Your case study should roughly follow the outline listed below.

1. **Name**
2. **Job, organization, and country**
3. **Title for your paper -** Please pick your own title
4. **Background to the Case Study**
   (you may need to include some information on your geographic region)
   Some information on why your topic is important to you
   How you or your organization became involved
   Work that has already been completed
5. **Statement of the "Problem" or "Success"**
   A brief statement outlining what "problem" you would like to solve or what success you are reporting on.
6. **Target Audience**
   The type of audience the case study is dealing with (urban, rural, age, economic and education status, occupation etc.)
7. **Current Resources Available**
   An indication of what cash and other resources you have available in order to work on this problem
8. **Obstacles to Success**
   A brief description of the possible obstacles and barriers you face(or have faced).
9. **Questions You Want Answered**
   A brief description of what questions you want answered at the workshop related to your case study
10. **Personal Learning Goals**
    A brief description of your own learning goals related to this case study and a strategy for how you will enhance your own personal learning while attending the workshop in the Philippines (i.e. diary, personal assessment tools etc.).

WORKSHOP AGENDA - Philippines

DAY ONE - ARRIVAL (December 8, 1994)

Late afternoon/evening program
Welcome

- Peter Basel -ICAE
- Dr. Noel C. Duhaylungsod- Centre for Environmental Concerns
- Anne Camozzi - Facilitator

DAY TWO - (December 9, 1994)

7:00 - 8:00	Breakfast
8:00 - 8:30	**Introductions**
8:30 -10:00	**Presentation of Regional Case Studies**
10:00 - 10:15	nutrition/stretch break
10:15 - Noon	**Presentation of Regional Case Studies**
Noon -1:00	Lunch
1:00 - 2:30	**Presentation of Regional Case Studies**
2:30 - 2:45	Nutrition/Stretch Break
2:45 - 4:30	**Synthesis** Summary of commonalities/differences
4:30 - 7:00	Free time
7:00	Dinner

DAY THREE - (December 10, 1994)

7:00 - 8:00	Breakfast
8:00 - 8:15	Introduction to the day's activities
8:15 - 10:00	**Visioning Exercise** Group will create an overall vision for the implementation of the Treaty on Environmental Education for Sustainable Societies
10:00 - 10:15	Nutrition/stretch break
10:15 - Noon	**Obstacles for implementing action-oriented approaches to adult environmental education**
Noon -1:00	Lunch
1:00 - 2:30	**Strategies for implementing action-oriented approaches to adult environmental education**

2:30 - 2:45	Nutrition/Stretch Break
2:45 - 4:30	**Synthesis**
	Application of obstacles and strategies to home situation
4:30 - 7:00	Free time
7:00	Dinner
8:00	EVENING PROGRAM
	Resource Fair
DAY FOUR -	**(December 11, 1994)**
7:00 - 8:00	Breakfast
8:00 - 8:15	Introduction to the day's activities
8:15 - 10:00	**Environmental Issues**
	How to identify environmental issues in everyday life
	Key and critical environmental issues that need to be dealt with
10:00 - 10:15	Nutrition/stretch break
10:15 - Noon	**Presentation /workshop**
	Dr. Heino Apel - German Institute for Adult Education - Methods for Educators
Noon - 1:00	Lunch
1:00 - 2:30	**Practical Applications of Theory to Case Studies**
2:30 - 2:45	Nutrition/Stretch Break
2:45 - 4:30	Participant networking and skill exchange
4:30 - 7:00	Free time
7:00	Dinner
8:00	EVENING PROGRAM
	Informal workshop - to be organized by participants themselves
	Developing an International Network
DAY FIVE	**(December 12, 1994)**
7:00 - 8:00	Breakfast
8:00 - 8:15	Introduction to the day's activities
8:15 - 10:00	**Selection and Production of EE resources and materials**
	10:00 - 10:15 Nutrition/stretch break
10:15 - Noon	**Criteria for the Production of EE Resources**
	session leader to be identified after questionnaire
	Participants will work in small groups to develop a list of criteria necessary for the production of international and national EE resources (two separate lists)

	Brief plenary to share results before lunch
Noon - 1:00	Lunch
1:00 - 2:30	Individual or paired work on individual action plan/project for home country - participants are resources for each other
2:30 - 2:45	Nutrition/Stretch Break
2:45 - 4:30	**Workshop wrap-up**
	Where do we go from here?
	evaluatio
4:30 - 7:00	Free time
7:00	Dinner and Social program

DAY SIX (December 13, 1994)

Field trip for all participants

APPENDIX THREE

BACKGROUND PAPERS

Workshop Goals

proposed by the meeting of experts at Curaçao, Netherlands Antilles, May 12-18, 1994

During the expert consultation, a number of needs were expressed which were deemed to reflect regional needs of environmental educators. Naturally, the identification of these needs was based on the experience of the collaborators present for the Curacao meeting and should not be construed to represent the findings of a rigorous needs assessment survey of the needs of international environmental educators. Neverhtheless, based on their collaborations, the meeting participants identified five major goals the attainment of which were thought to represent a worthwhile contribution to the enrichment of adult environmental educators.

1. To increase awareness and understanding of national policies and legal frameworks affecting environment and development issues.
2. To develop and use environmental education materials in and for adult education applications.
3. To offer workshop participants the opportunity to acquire strategies for implementing action-oriented approaches to environmental education.
4. To help workshop participants understand strategies for identifying environmental issues in everyday living.
5. To help workshop participants understand and apply strategies which increase learner participation, motivation and energy for environmental action.

These over-arching goals were then used to generate a series of general training objectives and some specific objectives for workshop sessions. These objectives are summarized on the following pages:

GOAL 1

To increase awareness and understanding of national policies and legal frameworks affecting environment and development issues.

Objectives:

1.1 To identify existing local, national and international laws and conventions and institutions responsible for setting environment standards.

  1.1.1 To establish a network with local, national and international institutions concerned with environmental laws and policies.

1.2 To select, interpret and disseminate relevant information e.g. (through distribution of documentation and sharing of experiences).

  1.2.1 To contact and enlist support of mass media to conduct public awareness seminars, workshops and materials distributions.

1.3 To integrate environment educators on relevant legal and policy issues in order to integrate A.E.E. programs.

  1.3.1 To prepare a curriculum and methods for adult environmental education programs and to conduct training courses and workshops.

GOAL 2

To develop and use environmental education materials in and for adult education applications.

Objectives:

2.1 To understand how to conduct a socio-econ. needs assessment survey for the specific community.

  2.1.1 To develop tools for information gathering for needs assessment surveys in cooperation with communities.

  2.1.2 To gather relevant information from existing materials.

2.2 To train environment educators in adult pedagogical skills to execute EE programs and produce materials.

  2.2.1 Analyze the data and develop relevant environmental education training programs.

2.3 Educators should be able to produce locally relevant support EE materials.

    2.3.1 To train environmental educators in materials development techniques and adult pedagogy.

    2.3.2 To conduct workshops on support materials production.

2.4 Educators should be able to identify, locate, access and familiarize with existing materials.

    2.4.1 To conduct regular materials evaluation activities.

2.5 To evaluate EE materials in order to improve the programs.

GOAL 3

To offer workshop participants the opportunity to acquire strategies for implementing action-oriented approaches to environmental education.

3.1. To understand the main adult environmental education models and their application to the adult education movement.

    3.1.1. To understand environment model, reformist model and radical model.

    3.1.2. To understand the trend of international adult education.

    3.1.3. To try to relate models with the international adult education movement.

3.2. To understand better what is adult education, popular education, participatory research and other learning approaches.

    3.2.1. To understand adult education.

    3.2.2. To understand popular education.

    3.2.3. To understand participatory education.

    3.2.4. To understand some other learning action approaches.

3.3. To apply those educational methodologies for environmental education which contribute to sustainable development.

  - 3.3.1. To explore and agree on "Sustainable Development".
  - 3.3.2. To try to relate different methodologies of environmental education to sustainable development.
  - 3.3.3. To test out the most appropriate pathways of application.

3.4. To improve the knowledge and practice of planning, organization, communication, systematization and evaluation of adult education in specific local situations.

  - 3.4.1. To evaluate their existing practice. To learn new techniques for program planning, organization, research, systematization.
  - 3.4.2. To learn action program implementation and evaluation techniques.
  - 3.4.3. To link the new techniques to their existing practice.

GOAL 4

To help workshop participants understand strategies for identifying environmental issues in everyday living.

4.1 Conduct participant environmental learning needs assessments.

  - 4.1.1 Understand the links between environmental issues and specific target groups, e.g., women, occupational groups, etc.
  - 4.1.2 Conduct group discussions to identify everyday living needs of people and how these are linked to environmental issues.
  - 4.1.3 Review and assess current research and public discussions which help identify environmental concerns affecting a given target group.
  - 4.1.4 Construct questionnaires or other measurement instruments to assess learner environmental literacy levels.
  - 4.1.5 Analyze patterns of past attendance and popularity of existing training courses and predict future training needs.

4.2 Conduct waste, energy use and consumption audits on learner households and workplaces.

  4.2.1 Assess learner attitudes and knowledge with respect to waste, energy and consumption issues.

  4.2.2 Construct waste, energy and consumption audit procedures.

  4.2.3 Analyze and interpret results of audit findings and link these to economic, social, and environmental least-cost solutions.

  4.2.4 Create recommendations for ways of reducing waste and energy consumption and establishing more sustainable patterns of consumption.

4.3 Identify personal and community environmental health concerns.

  4.3.1 Moderate community/learner discussions of personal/environmental health concerns through participatory discussion methods.

  4.3.2 Interview local health authorities and medical practitioners.

  4.3.3 Identify and interview community preventive health educators.

  4.3.4 Integrate environmental health practices into existing health education training programs.

4.4 Demonstrate links between community economic development and environmental impacts.

  4.4.1 Identify local community development projects/goals related to every day needs of learners.

  4.4.2 Define environmental impacts of identified development projects.

  4.4.3 Create strategies for reducing environmental impacts of development

4.5 Understand workplace/vocational health and safety issues.

  4.5.1 Moderate discussions with workers to define health and safety concerns in the workplace.

  4.5.2 Gather information from published sources on health and safety concerns in the workplace.

4.5.3 Identify procedures and strategies for improving safety and environmental health in working environments.

4.6 Identify psychological factors linked to environmental problems.

4.6.1 Reviews literature related to environmental psychology and psychological reactions to perceptions of environmental risks.

4.6.2 Participate in discussions of the psychological affects of environmental problems in the community.

4.6.3 Develop appreciation for the social and cultural factors which contribute to environmental problems over and above meeting basic human needs.

GOAL 5

To help workshop participants understand and apply strategies which increase learner participation, motivation and energy for environmental action.

5.1. Design and apply activity-oriented learning activities.

5.2. Enable learners to identify and appreciate their own knowledge and experience.

5.3 Know and share positive examples of successful projects elsewhere.

5.4. Identify and resolve constraints to active involvement.

5.5 Understands and implements strategies for team-building and cooperation.

5.6. Identify individual learner competencies and appropriate pathways for involvement.

5.7. Identify motivational needs of learners.

'SEED'ing for a Liberative Adult Education on Environment in the Asian South Pacific Region[1]

Noel C. Duhaylungsod[2]

An environmentalist's note. Our current Conference-Workshop of adult educators on environment may well be considered as a regional response to the demands of the Treaty on Environmental Education for Sustainable Societies and Global Responsibility. In a broader sense, this activity will be regarded as a contribution to world action against environmental deterioration amidst hunger, human oppression and exploitation, deprivation, and even slow death of nearly two billion of the human population who are living in the Asian continent and islands.

I am certain that our coming together as environmental educators is rationally justified and is not "one of those world happenings". Hence, let us be reminded of the fact that after the Rio Summit and International Global Forum in June 1992, the number of conferences and workshops purportedly as follow-up activities has increased tremendously in 1993 alone. There are many more scheduled for 1994 and perhaps, even more are in store for 1995!.

I wish to describe this conference-workshop as a prelude to a regional implementation of an adult education on environment. Therefore, my intention in this paper is to propose a regional operative framework of adult education on environment with tenable objectives over a particular time frame, say up until 1995. I hope that this will focus upcoming meetings and substantially reduce their number and costs, too. Also, in this way we get our acts together more with adult learners in the field and less in conference boardrooms.

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[1] Paper (proposal) presented to the 1st ASPBAE Conference-Workshop on Adult Education on Environment (ASPBAE-CWEE), 9-20 January 1994, IIRR, Silang, Philippines.

[2] Executive Director, CEC-Philippines; Convenor of the 1st ASPBAE-CWEE.

Adult Education for Liberation. The Treaty on Environmental Education is the most comprehensive document on the subject. It is a declaration of about 20,000 representatives of the world's social liberation movements and the NGO community who attended the International Global Forum in Rio de Janiero, Brazil in 1992. It went through a participative process of integrating opinions, commentaries and positions as regards to an education agenda for socioecological sustainability. On its part, the ASPBAE has played a major role during the formulation of this treaty and it is hoped that it continues to provide the leadership for the region.

A community-based adult education on environment is a liberatory project. But, first, we need to liberate ourselves from too much conceptual debates. We need more empirically-based theoretical discussions.

It is easy to fall into endless intellectual discourses on the so-called alternative concepts of sustainable development, ecological economics, environmental free market, participatory development, biodistrict development, etc.. Instead, a liberative process is to translate success cases of community progress into possibilities of development alternatives. I believe that the people have plenty of these cases.

Second, a liberatory project should not necessarily be 'scientified or objectified'. We really have to liberate ourselves from this fixation.

The dominant development thinking argues that before anyone could come up with propositions, this must be based on 'objective theories' and founded on 'scientific premises'. The objective theories referred to here are those which do not rely on qualitative observation, or from senses because these are subjective measures. On the other hand, scientific premises are based on empirical evidences measured quantitatively from definitive patterns of scientific logic, as in the 7 steps of the scientific method, and analyzed numerically. The trouble with this framework is that only those schooled in the same language/jargon are able to understand and make scientific and objectified proposals. But, life tells us that this isn't always the case.

Many of our peoples in the region are in their critical state (whether sociopolitical, economic, biophysical or cultural) of perturbation but they have shown their tenacity for handling the most harsh of situations. Some have progressed from disaster. Indeed, this is putting science into its best test yet they never use technical and scientific jargon to explain the engineering, chemistry and physics of their actions.

We really don't have to scientify and objectify so often as we want.

Third, we need to liberate ourselves from being anthropocentric.

In the Judeo-christian tradition, we call this as self-centeredness expressed as being the stewards of God's creation and having dominion over the earth. This framework has strongly dominated our thinking of resource use and management. And, it is this mental set that brought about the massive environmental destruction which threatens life itself.

However, anthropocentricism can not be replaced by the other extreme which is geobiocentrism. In recent years, these geobiocentrics have called themselves as deep ecologists.

Some people suggest the humane but holistic perspective of social ecocentrism which considers the different components of the universe (person, nature, society, state, etc) as having their own niche and therefore, their own role and contribution to the overall planetary good and control of the entire system. In this worldview, the person remains as still the most potentially destructive as well as constructive component because of its higher form of intelligence among the minded organisms.

Fourth, we must liberate ourselves from the clutches of oppresive and exploitative systems.

The world's landscape is in a state of disaster and this holds true for its biophysical, economic, and sociocultural environments.

Hence, in this context our environmental education program must provide avenues for individuals and groups to go into directed rehabilitation work. Essentially this means that rehabilitation must not reinforce a non-ecological system to complete the cycle of destruction. In other words, rehabilitation work must be liberative from the restrictions and confines of the current dominant system which in fact perpetuates environmental destruction. Somehow, alternative mechanisms and structures must be created to preserve what has been rehabilitated.

Ellis (1993:27) aptly characterized a liberative type of adult education with the themes of

> "people and people's participation, of equality and freedom, of empowerment and of the right to choose ... the emphasis on and the commitment to use more participatory approaches and methodologies as a strategy not only for facilitating learning, but for helping people to learn how to participate ... encourages and facilitates critical analysis and reflection on experience and on reality ... motivate people to continue and intensify their struggles for more democratic societies".

In the Philippines, the Center for Environmental Concerns is establishing an innovative approach to adult education through the formation of a Peoples' Faculty of Grassroots Environmental Educators. We wish to believe that this is an example of a liberative adult education.

An a priori task. There is a need to define clearly what ASPBAE wants to achieve by way of a 1994-95 regional mission statement (period is along the expectations of the Rio Global Forum). This task will not be easy considering the wide range of circumstances of adult education in the region, however, we now have enough material to base a rallying statement.

In September 1991, we convened a thematic planning workshop to formulate indicative components of an environmental education program. The results were presented to the 1st ASPBAE General Assembly in December 1991. Six months later, the Rio Conference passed a Treaty on Environmental Education while meetings following that historic event have attempted to define further this program.

At this stage, let me propose a 1994-95 ASPBAE-EE mission statement, to wit;

> "to systematize and hasten adult education on environment in the region through the establishment of the Society of Environmental Educators in the Asian South Pacific: Phase I - Systems Development (SEED of ASPBAE)".

Proposed Objectives.

1. To establish the SEED of ASPBAE which shall
    1.1 formulate a training module on Participatory Adult Education on Environment, and
    1.2 formulate training modules on Ecosystem Enhancement and Protection for Adult Education such as on the topics of biodiversity and environmental assessment
2. To add vigor in the current ASPBAE-EE newsletter (LEAVES) by including more sub-regional/programmatical bulletins, and
3. To organize a simple but effective information education exchange system,

These objectives are obtainable in 2 years. For instance in objective #1, we could start working out some salient features of the Society during this conference-workshop. Focused workshops culminating from well advised researches will accomplish the work on module preparations. Some organizations have produced documents on participatory education (e.g., CEC-Phils. [J.R. Guevara] has produced a book on grassroots education and R. Tandon produced another). Although longer in phasing, objective 1.2 could be drafted by specialty workshops.

Regarding objective #2, we observed that currently, there is not much subregional and/or program information exchanges. Perhaps, this is a matter of systematization. With a more active writing/reporting of the subregional facilitators, the Program Coordinator, as well as adult education practioners, will surely fit in regular bulletin-columns on the LEAVES. Similarly, we noticed that existing journals and periodicals contain several cases of peoples' environmental education actions. We even have 'walking encyclopedias' who need assistance particularly in putting down their knowledge and skills in writing.

Education materials development must be a major concern of information education. However, an elaborate information system, at least at this stage is not required.

Guiding all the objectives is the emphasis to articulate the southerner's worldviews and approaches to environmental education.

The 2-year outputs which are in the form of training modules and education materials will form as base documents for the training implementation phase of the SEED of ASPBAE in 1996.

Proposed Components. The SEED Project of ASPBAE-EE will require three components, namely;

(1) Organizational Development

This component will include the administration of the Society and its resources. Initially, this will mean the formulation of the SEED Charter which must be duly approved by the ASPBAE Executive Committee. Thereafter, it will administer the SEED Charter and spearhead the generation of resources. An efficient management system must be evolved.

(2) Module Development

A major concern of the component will be the translation of experiences in environmental enhancement and protection into training or teaching materials.

The modules may be in the form of methodologies, and cases (subject matter) of adult education in the region.

(3) Information Education

This component will systematically produce and disseminate education materials. Avenues for sustained information exchanges among the adult educators in the region will be established.

Operationalizing the proposal. As a matter of commitment, the Center for Environmental Concerns-phils. could serve as the SEED Coordinator until such time that the "Society of Environmental Educators in the Asian South Pacific Region" has finally worked out its operational management system. The Center shall facilitate the drafting of the SEED Charter and its ratification, and the drafting of other 'transitory' project proposals for fund sourcing.

In this connection, we are proposing that in the current educator's Conference-Workshop, a workgroup on project development will be formed and tasked to transform the ideas in this proposal (if accepted) into a packaged ASPBAE project proposal. An abstract of this proposal will be submitted to the ASPBAE Executive Committee for discussion.

While funds are being sought, we are suggesting further that in 1994, the ASPBAE LEAVES will carry a 2-page supplement on the SEED Project developments.

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German Institute for Adult Education
of the German Adult Education Association DIE /DVV

Trends and new projects for environmental education in Germany

Heino Apel

1. Overview

The environmental education in Germany has to be explained with regard to the development of the environmental movement.

The development of the environmental movement can be subdivided into three phases (cp. fig. 1):

The initial phase 1970 - 1980

Following the environmental discussion in the USA (environmental economics, Meadow's "Limits to growth" etc.) and the UNESCO conference in Stockholm (1972) the issue of environmental protection in Germany was taken up in intellectual circles. In the early seventies the government introduced a wide range of environmental laws and environmental institutions. However with the first serious german economic crisis accompanied by the rise of the oil price the understanding of a contradiction between ecology and economy came up. The public opinion was changing. Only minorities were for an ecological renewal. From 1975 on a new local fundamentel movement against atomic plants was started. The citizens protested against governmental decisions concerning the so called "big technology". In the framework of "citizen initiatives" a new cultural scheme was developed. The dream of an autonomous man, surrounded by surveyable technologies (small is beautiful) was the true aim of many people suffering from high tech sourroundings, stress at work and a loss of live quality.

During their struggle against the location of a powerplant, a highway or a garbage incineration plant, the members of the initiatives had to learn to argue with the experts of the plant administrations and of the government in a competent way. The science of pedagogy has recognized the fact that those people did learn a lot "in the street" or in the course of the political debate having no teachers or other competent institutions.

The early concepts of reforming the pedagogical thinking became modern again and a strong influence of the new approaches on an ecological pedagogy could be observed. The pedagogical journals faced serious debates concerning the right path to an ecological education: What are the adequate methods, what are obligatory contents to be included? The arguments were moving between "conservative" approaches (natural science oriented approaches promoting the educational attitude to influence people's mind towards a "better" environmental behaviour) and "progressive" approaches (politically oriented, using "open methods" and focusing on the strengthening of the self-reliance, self-education by means of political action etc.).

In the german language there are two notions for the english word education: "Erziehung" and "Bildung". The first means directly translated: to pull someone in the desired direction, the latter means: to support the process of building up one's mind and personality (empowerment).

Similarly, you can find different connotations in case of notions regarding the environment. The word "Umwelt" (= environment) is often related to an anthropozentric understanding of the world. The man rules his environment, using "hard" technologies.

The word "ecological" was in former times a pure scientific characterization, however in the 1970s it changed strongly towards a new paradigm, concerning the way of thinking and acting with the whole system of the man and his biosphere. Now you can imagine that
Umwelterziehung
Umweltbildung and
oekologische Bildung
are related to special environmental-ideological approaches.

The extension phase 1980 - 1990

Some of the initiatives against the atomic plants, of groups for natural protection, of the leftist an other members of the "environmental movement" joined together to represent the "green party" which came into the german parliaments in 1982. This event constituted a turning point, as the involvement for a better environment turned from a protesting attitude towards an accepted and desired behaviour. All political parties introduced the "green conceptions" in their programs. The activities of the Ministry for Environment were revalued, the environmental laws were strengthened and the general belief that ecology hampers economy was changed. The process of a moderate "ecologization" of the

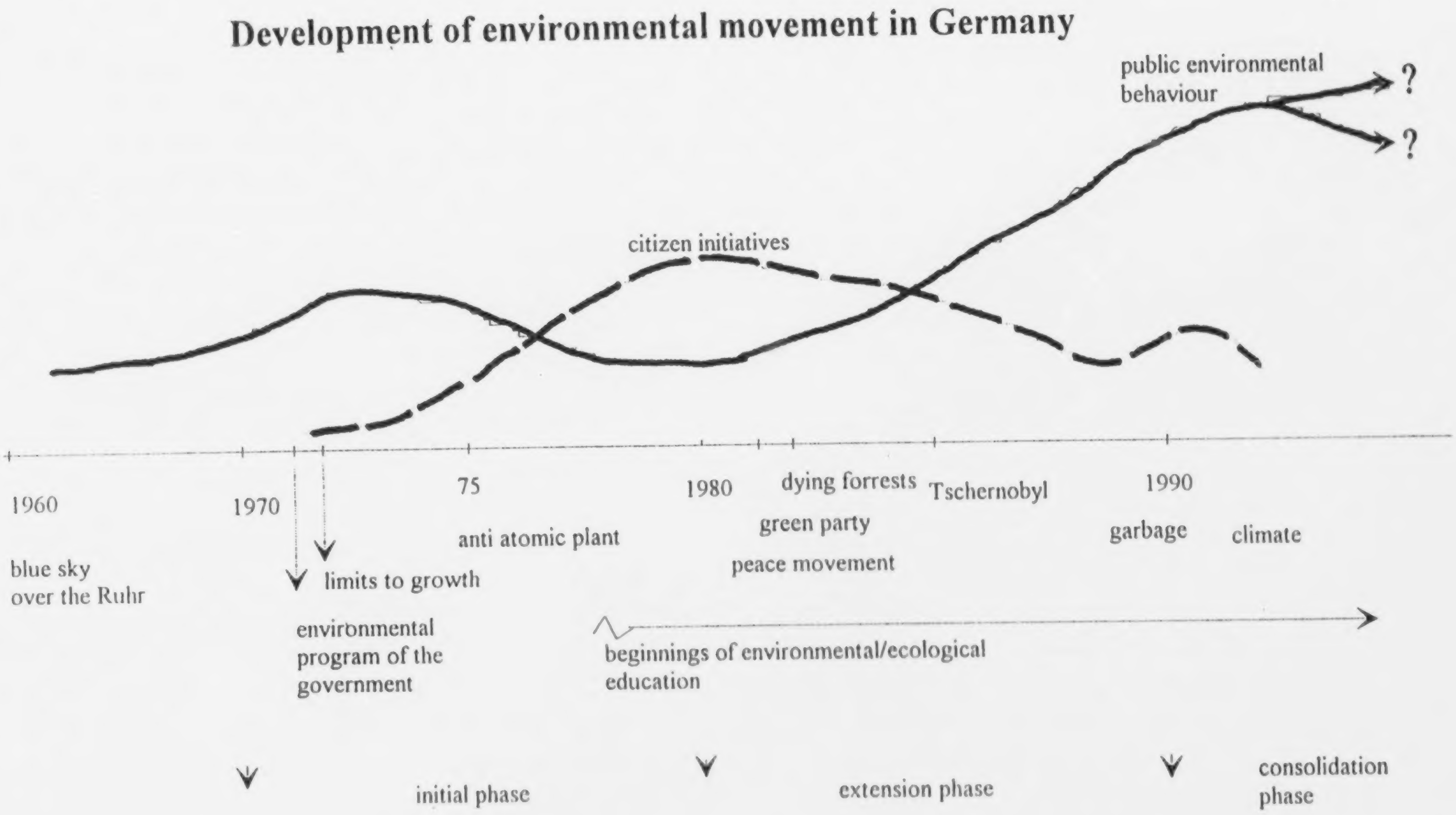


Fig. 1: Environmental movement in Germany

industry was increasingly understood as a process of an industrial modernization improving the efficiency and the marked position.

The publishing sector saw a boom in ecological literature and around 1985 some important pedagogical books on environmental education were available on the market.

Consolidation phase or roll back? 1990+

The environmental issue has found a good response on the part of the public opinion. No political or industrial person of relevance dares to deny the importance of the environmental protection. The issue and the environmental consciousness is mainly in the mind of the people and less in their actions and their real behaviour. It remains an open question what the main path towards an adopted and sustainable development of that issue will be: the path of technological solutions or the path of changed values towards a more modest exploitation of nature. Because of the economic difficulties with regard to the reunion of East and West Germany and the world wide economic recession in the early nineties, it is possible that the public environmental behaviour will decrease again.

Another question is how to equalize and coordinate the international agreements and laws on the environmetal protection.

In schools and on a smaller scale in technical vocational training the environmental education is obligatory with the principle of integration. The mass media have been focusing their attention on environmetal scandals especially and a lot of people have been surfeited with bad news of environmetal distruction. In the area of general further and continuing education the environmental education is offered by the German Volkshochschulen, The Churches, environmental associations, the trade-unions and others. The target groups are committed middle class people. Figure 2 shows the expansion of the offered environmental courses by the Volkshochschulen. Towards the end of the eighties you can see that a stage of saturation with the offers has been achieved.

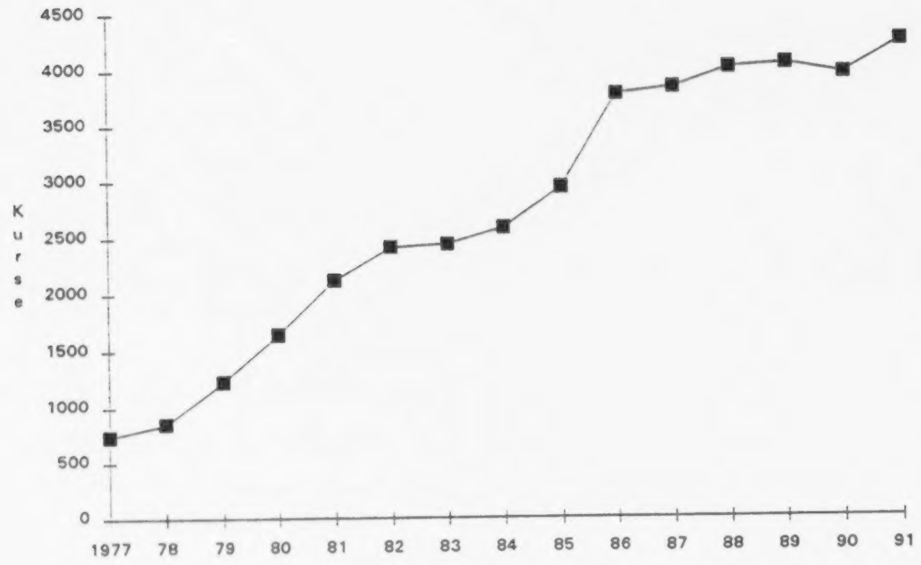


Fig. 2: Environmental offers at the German Volkshochschulen

The stagnation seems to be due mainly to the changing surroundings. The people are informed about the state of the environment and they don't like to hear about disastrous stories. Some people don't want to discuss the matter any more, they want to be active. Other people have given up. In their opinion, there have been not enough changes as regards environmental protection. Last but not least there is an increasing competition of environmental programmes offered by NGO's, Churches, trade unions, environmental assosiations, etc. There seems to be a growing supply with a shrinking demand.

In comparison with the earlier period we have a much bigger "spare time" industry. The scope of private indoor and outdoor offers capturing the mind of the people has increased. This is a traceable competition for environmental education offers. Another kind of competition comes from the growing pressure for further education in the area of vocational education. Because of the socio economic problems related with the Germain runion and the European economic crisis in the early ninties there is an extreme scarcity in the governmental finances. With respect to the economic crises (higest unemployment ratio after the war) people do rank the environmental issues on a lower degree compared with investigations in the late eighties. Laking public money and a lowering of ecological attitudes in the population lead to a partly set-back in the envitonmental movement. Since the most environmental institutions are supported by public finances, the whole environmental further education suffers with the crises. There is an healthy effect that the different institutions offering environmental programmes try to become more effective in asking for more cooperation. They offer common planned and common advertized programmes.

2. Classification of environmental education programmes in Germany

Because of the different starting points and the different social groups intending environmental education we are faced with a variety of very different approaches. From a very genaral viewpoint we can describe environmental education as a four dimensional construct.

cognition/
reflection

action
personal/political

value
ethics

perception
sensation

Fig.3: Dimensions of environmental education

As shown in figure 3 an environmental education approach can comprise cognitive, action, perception and ethic aspects. The most practisized approaches reley only on one main aspect. With regard to an holistic pretension an environmental course should have all four dimensions.

From a philosophical point of view we observe the following attitudes in environmental education programmes:

the protection view	nature oriented; protecting plants, animals, habitats
catastrophic approaches	sensation oriented, making people aware
moral (appelant) oriented	teaching the "right" behaviour

pragmatic-technocratic view	teaching + constructing technical feasible solutions "partial steps approach"
fundamentalistic view	demanding for radical changes believing in one ecological truth
socio-political view	concentrating on socio-economic conditions, trial to change society and/or the industrial system

There is a certain relation between contents and methods in evironmental education programmes. The following table compares the contents of programmes with the mainly used methods in Germany (The number of stars indicates the most prefered methods.

environmental contents:	**methods:** kognitive knowledge-transfer	affective	event/ adventure	action classroom	action outdoor
nature, biology	**	***	**		**
health		**		****	
science + technology	****			*	
political, local+global	***				*
vocational training	***			*	

Fig.4: Relation between contents and used prefered methods in present environmental programmes

3. The structure of the environmental offers of the German Volkshochschulen

In 1992, environmental offers were investigated, contained in the programmes of a sample of 69 Volkshochschulen. First let me state that only about 1,5% of the whole educational offers of the German Volkshochschulen are related to environmental education. In order to get an insight into their contents, following subject areas have been differentiated:

- nature-oriented
- health-oriented
- science and technology-oriented
- politically and globally-orientied
- vocational environmental education

The percentage of the offered hours in the natural-science-oriented area is lower than the percentage of the offered courses, as a result of relatively shorter courses (e.g. lectures) being offered.

The predominance of nature-oriented courses shows the importance of a sensual experience with nature in education. The rather high percentage of health-oriented education offers has been due to the growing significance of the health education during the last years. Astonishing is the low percentage of offers related to garbage and to the greenhouse effect. Both subjects have been up-to-date and heavily discussed by the german public opinion.

In Table 1 you can see the results of our investigation.

	offers	**%**	**hours**	**%**
nature-oriented	**656**	**47,0**	**4564**	**38,3**
garden	152	10,9	1126	9,5
natural protection (with excursions)	374	26,8	2551	21,4
mushrooms (with excursions)	5	0,3	26	0,2
excursions and lectures on ecology	100	7,2	707	5,9
children education	25	1,8	154	1,3
health-oriented	**303**	**21,7**	**3438**	**28,9**
wholemeal nutrition	258	18,5	3110	26,1
officinal herbs	45	3,2	328	2,8
science and technology-oriented	**256**	**18,3**	**1828**	**15,4**
ecology in the household	50	3,6	404	3,4
ecological building/sanitation	50	3,6	345	2,9
water	32	2,3	249	2,1
ecological science, genetic science	24	1,7	143	1,2
garbage	42	3,0	226	1,9
Content measuring of harmful substances	21	1,5	130	1,1
alternative energy sources	37	2,6	331	2,8
politically and globally-oriented	**164**	**11,7**	**1772**	**14,9**
ecology/environment (global)	83	6,0	1238	10,4
ecology of the town	21	1,5	192	1,6
greenhouse effect and ozone hole	27	1,9	126	1,1
traffic	20	1,4	145	1,2
agriculture	13	0,9	71	0,6
vocational education	**18**	**1,3**	**295**	**2,5**
total	**1397**	**100,0**	**11897**	**100,0**

Table 1: Offers of environmental education in German Volkshochschulen

In Figure 5 we investigated the difference between bigger and smaller Volkshochschulen. The distribution of the beam diagram shows that only small differences can actually be found. Therefore, it cannot be claimed that there is a gap between the cities and the provincial areas.

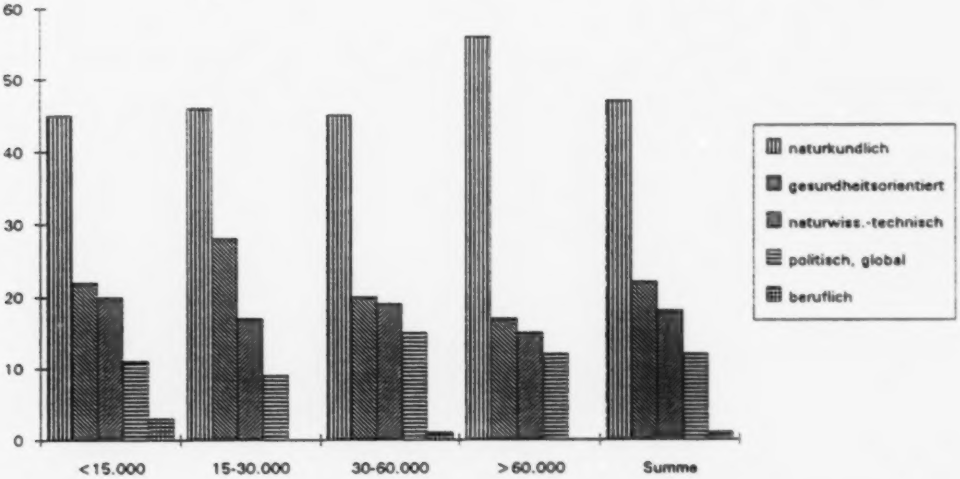
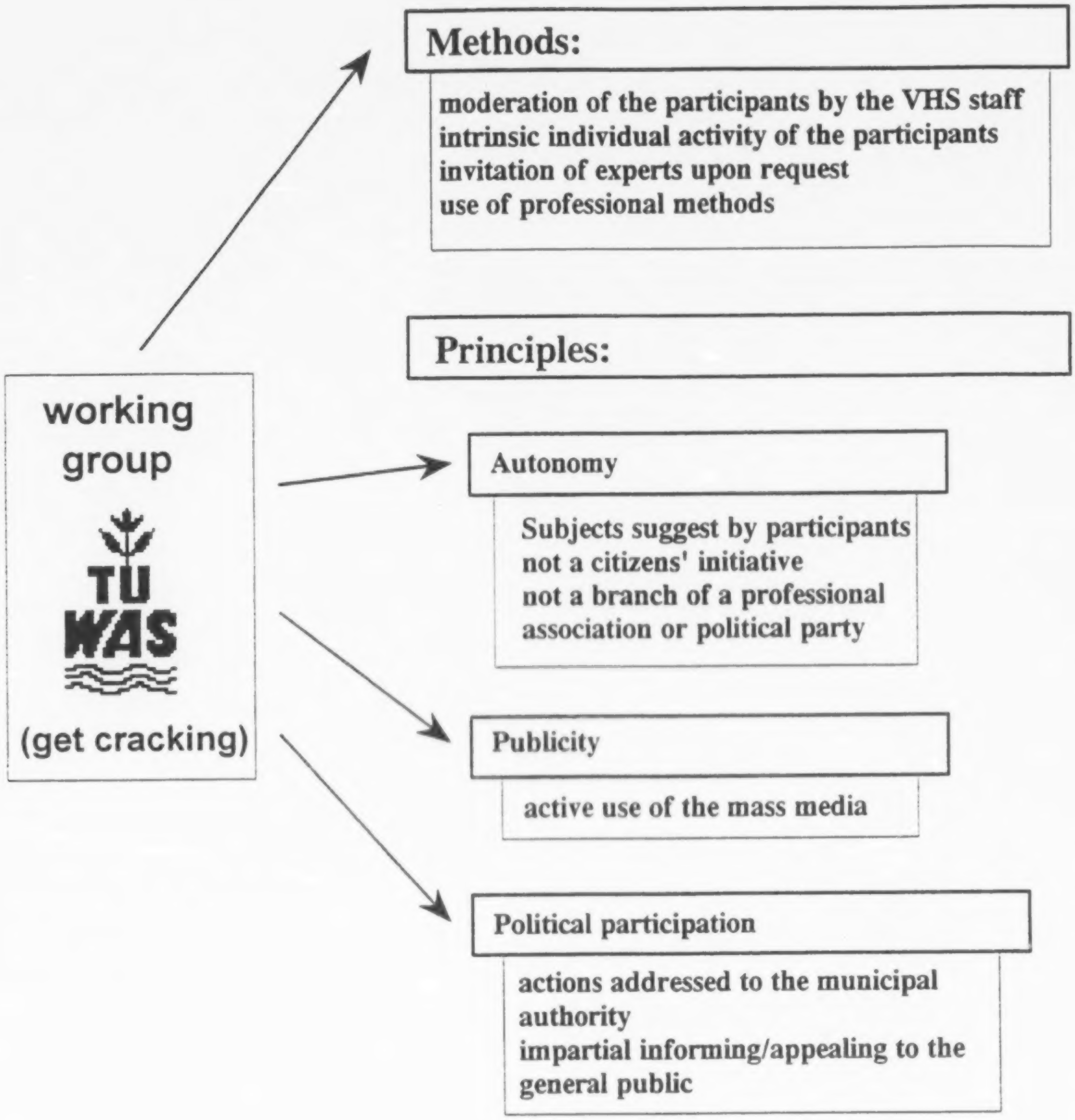


Fig. 5: The distribution of the environmental subjects related to the size (total hours offered) of a Volkshochschule

3. Some examples of "new" environmental educational approaches

The action-oriented approach "TU WAS" ("get cracking")

In the Volkshochschule Grafing there is a very effectively good-working study circle "TU WAS" ("get cracking"). Having 160 members, it can be described partly as a citizen initiative and partly as a VHS-course. The members (or rather a certain part of the members) meet every 14 days in a room of a restaurant. An adult education staff member of the Volkshochschule moderates the group. There is an order of the day which has previously been sent to all members with a protocoll from the last session. The protocoll is like a small newspaper and serves as a connection link between the members and the public. The main goal of the study circle is to interact in local environmental problems. The target of the education activity is more of a side effect, because acting on a local scale means to be informed about what is going on, also it mean to be able to understand the relations and reasons for the environmental disruptions and last but not least it means to



Methods:

moderation of the participants by the VHS staff
intrinsic individual activity of the participants
invitation of experts upon request
use of professional methods

Principles:

Autonomy

Subjects suggest by participants
not a citizens' initiative
not a branch of a professional association or political party

Publicity

active use of the mass media

Political participation

actions addressed to the municipal authority
impartial informing/appealing to the general public

Fig. 6: The concept of the working group "TU WAS"

think about solutions. The subjects to be investigated are suggested by the members of the circle. Obviously, there must be a majority in order to accept the subject as interesting enough to be studied. A very important aspect of the whole issue is the use of the mass media. There is usually a good cooperation with the local daily journal, in which the circle ownes a column concerning regular environmental reports delivered by members of the circle. In their investigation of the local environment, the circle tries to use scientific method (cp. fig. 6).

One of its biggest actions was taking measurement of the drinking-water of the district. Over 200 samples were measured and the values were put on a district's map. The procedure enabled the members to learn how to take water samples. Experts in ground water contamination were invited to give lectures. Discussions with the farmers as the main contaminators had to be held which resulted in a fierce debate with the local authority. As the consequence of the drinking-water investigation and discussion, the circle turned into an environmental citizen advisory board. Another big investigation has been a mapping of the liches distributing as bio indicators for the air quality.

From the pedagogical point of view the water investigation has been a very interdisciplinary project accompanied by cognitive, emotional, organizational and hands-on experiences. It has been an expample that environmental education is political education as well.

From 1991/92 on the Federal Environmental Agency has been sponsoring a project on the German Institute for Adult Education of the German Adult Education Association (DIE/DVV) to multiply nationwide the study circle approach. There is now a growing network of TU WAS study circles in Germany. An essential subject of the study circle TU WAS in Grafing is measuring the environment and demanding for local solutions of the observed problems. The other new established study circles rely partly on different working subjects. Themes are, 'greening of houses and places', 'developing an ecological city-path', 'investigation of the local retail trade's ecological quality', 'supporting the recycling and long live approaches in founding a second hand car exchange', etc.

In any case the participants have to undertake a lot of outdoor activities, they intervene in public affairs and mostly they run into conflicts withe the local authority or a local pressure group.

The beginning phase of a new founded study circle seems to be the most difficult. The participants are still unexperienced with organizational and public topics. They do not know yet their personal strength. Often they are expecting that the teacher acts and do not understand the concept of self organization and moderation as a fruitful principle in adults learning processes. Because of the small number of participants the circles suffer under the fluctuation. Because of the small successes or even of the failures of their work in the beginning there is only little feedback in the feeling to do something important in the local area.

All these difficulties diminish when the circle runs over a longer period. The moderator of a circle has to invest an high amount of energy in the beginning. He needs a different kind of qualification compared with a "classical" trained environmental teacher. On a network meeting of the study circles all the leaders of study groups wished further training on moderation techniques. So this approach demands for a new generation of environmental trainers.

Because of the above discribed difficulties the first success of the multiplying project was a little smaller than expected. Obviously, the possibilities of a local political conflict, the openess, the publicity and the time needed to care for such a circle do reaches beyond the borders offered by a job as an adult education staff member in the Volkshochschule. But the idea is growing, and in 1994 there has been the foundation of a German Association of the TU WAS working groups.

The "forum" approach

If an environmental problem of public interest arises concerning different groups representing conflicting interests in a town, a Volkshochschule may attempt to invite the group representatives to take part in a debate/discussion giving them a neutral forum which makes a public discours possible. This kind of a "political hearing" is suited to provide insights in political decision making processes in conflicting situations between the public and private interests, and eventually it can make the VHS open to new participants, which would turn the study place VHS into a public one.

A more profound form of the forum approach was promoted in Germany by Reinhard Sellnow. In his attempt to adapt the American mediation approach he tries to moderate the conflict processes in the framework of a VHS, the starting point being a contract with the conflicting parties (groups) in which certain rules concerning a mutual commitment are layed down. The members in charge of the conflicting groups participate in workshops in order to elaborate on different points of views and to find the areas of common interest.

For the pedagogical staff, it is a very demanding approach, as the pedagogues have to be trained in moderation techniques, they have to be well connected politically without beeing a member of party. Only a few mediations have taken place. Both parties, the VHS and the conflicting parties are very reluctant to expose themselves to this new approach.

Cooperation with other institutions

As stated above there are many institutions in Germany offering environmental education in local areas. It may even happen, various institutions provide offers treating the same subject matter. In order to avoid a competition it is much better to cooperate. In the VHS Hamm there has been a special project to implement and evaluate the cooperation between all supporters of the idea of environmental education. The first step was to find out where the offers come from in a particular region. The next step was to invite different groups in order to find out common interests and to look for cooperative offers. This could have been an exchange of teamers, a harmonization of the offers, a common declaration in the program papers of the institutions etc. It turned out that there were a lot of barriers and prejudices between the various institutions offering environmental education. Not all of them have been willing to cooperate, which is in fact a slow process bringing only some of them together. However, cooperation on the whole has been in most cases successful. The "drop outs" of the offers could be reduced and the number of participants of commonly organized offers has been increased

The most difficult task is the working out of cooperative approaches in which each supporter involved undertakes substantial parts of the educational offer. Ecological education means not only thinking in complex systems but becoming aware of the interaction between man, nature and society as well. This learning process is much more effective if group members having different interests and different aims have to learn and act together, e.g. the planning of bike roads in a VHS course can be very frustrating for the participants if their results of their work do not have any effects on the planning authority of the commune. However, if the course follows a cooperative approach between the VHS and the planning department, then the citizens and the members of the administration may learn from one another about their respective needs and constraints. The planning result will be then much more realistic and it will have a much bigger chance to find recognition in the political decision-making process.

The German Institute for Adult Education of the German Adult Education Association (DIE/DVV) has been carrying out the project "Concepts for the protection of the earth's atmosphere in the further and continuous education" financed by the Ministry of Education with a special goal to promote cooperation. The main partner involved in the project is the Working Group for Nature and Evironmental Education organized independently from the DVV. The environmental education centers are mostly located on the outskirts of towns and equipped with biological gardens, small forests, energy parks etc. The mutual cooperation of both institutions favours the application of action- and experience-oriented approaches and of those more cognitive-oriented. The project will be running for two and a half years. Regional workshops are planned in which both staff from the VHS and the centers will have an opportunity to exchange ideas, to develop concepts and to initiate cooperative offers related to the issue of the climatic change. Materials (concepts, empirical papers and documents on organizational aspects of the cooperation) will be published (cp. fig. 7).

A change in the environmental pedagogical attitude: From natural science towards more subjective and active orientation

If we recognize the citizen initiatives as a main root of the modern environmental education then we see ecology as an area with a double heritage. The "action" part of the initiatives was political and the "knowledge" part was mainly natural science oriented. The citizens had to acquire knowledge about energy systems, atomic power plants radiation, gen-technology etc. The environmental education today has been enjoying public support without political struggles. Thus the political contents have disappeared and the scientific contents have remained. In the past, most environmental teachers came from the science departments, such as biology, physics, geography and engineering. In modern society people willing to freely join an educational offer do not prefer hard science-oriented courses. Lots of every-day-life-oriented environmental courses have an natural science or technological touch (e.g. chemistry in the household, healthy food, energy saving commodities etc.).

It is possible that as a result of the spreading out of the change of values, the preference for subjective-oriented offers in the general continuous education can be observed in the last years. There is a boom in health education, in which area women, especially, take care of their body and of their personal well beeing. One important rule should be applied in the working out of an educational offer: What does the offered subject have to do with the individual interest and the emotional attitude of the potential demander?

Project:
Concepts for the protection of the earth's atmosphere in the further and continuous education

Financing: Ministery of Education
Carrier: German Adult Education Association, DVV
German Institute for Adult Education, DIE and
Working Group for Nature and Environmental Education, ANU

Goal:

Dissemination of results of the study Commission of the German Bundestag "Preventive Measures to Protect the Earth's Atmosphere" into the further and continuous education

Claim:

Spread out orientational knowledge and give action-promoting stimuli for the personal and poltical behaviour.
Promote coperation between DVV and ANU.

Cooperation:

carrier level: DVV - ANU

institutions: Volkshochschulen - nature centers

planning: common concepts
common advertising
common budgets
changing study locations

teacher: common further education
exchange of experience
common materials

participants: new target groups
new experiences
wider use of offers

Materials:

For the planning of cooperative concepts.
Concepts for climate, ozone and rain forrest issues
Empirical reports

Fig. 7: The "climate" project of DIE/DVV and ANU

Abstract subjects in environmental education offers like the climatic change, gen-technology, traffic systems, urban planning etc. are not very likely to be recognised by the people in Germany. Some years ago there was a certain chance for such offers to be taken up, because they were new ideas, somewhat vague and mysterious. Nowadays, a small number of seriously engaged people have been well informed. There is a broad literature on these subjects, and an ordinary citizen is aware of the catastrophic scenarios of ecology-threatening circumstances in the areas affected by the humans. However, there is a big gap between beeing informed about general environmental problems and having knowledge about the processes going on in the ecological fields. People are bombarded with contradictory messages on environment, but they are not able to judge which is the true one. There seems to be a great need for the educational offers to be clarified, but ordinary people do not ask for additional education. Therefore the proposing of subjective-oriented approaches with the secondary goal to treat abstract contexts related to the subject simultaneously might be a successful way to find new target groups for environmental education.

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ADULT ENVIRONMENTAL EDUCATION:

A REGIONAL REPORT FOR NORTH AMERICA

Prepared By:

Mark A. Burch
representing:

The International Council for Adult Education
Toronto, Ontario, Canada

Presented at:

Curacao, Netherlands Antilles
May 12-18, 1994.

SELECTED REGIONAL ACTIVITIES

The education of adults for environmental literacy and stewardship is a vastly underdeveloped area of education in North America compared to the efforts and resources being devoted to the education of children. From the time when the magnitude of environmental problems was first recognized as requiring a long-term commitment to fundamental social, economic and technical change, politicians and educators alike have looked to the next generation as the focus for environmental education efforts. To some extent, this tendency speaks of certain truths but also attests to certain patterns of avoidance and denial among adults.

It *is* true that sustaining the planetary environment will require fundamental changes in our way of life. It is also true that these changes will be long-term and that children are more easily socialized to new patterns of behaviour than are adults resocialized to them. We suppose that forming values in young people is a more tractable task than reforming their elders.

Conversely, it may be that assigning priority of environmental education to youth is a way that adults currently enjoying positions of privilege and luxury can defer making changes in their own habits. It may also be a way of avoiding the painful emotional realities which might attend awareness of the fact that environmental collapse may well visit the present generation of humans and not wait for our grandchildren's time. We seem more inclined to prepare our children to make heroic sacrifices for the planet than to make them ourselves.

In any case, there have been more organizations, publications and resources made available for the education of children during the twenty years since the first Earth Summit than for adults. This situation persists despite the fact that decisions taken by adults during the next decade could well seal the fates of all future generations. We will attempt to summarize below (though not exhaustively survey) some of the initiatives which can or do have educational relevance for adults in Canada.

Environment Canada (the federal ministry for environmental affairs in Canada) launched its *Environmental Citizenship* initiative in 1990 with the intent of increasing general levels of environmental literacy throughout the country as well as stimulating grassroots, community-based initiatives to conserve resources, rehabilitate damaged environments, and foster citizen activism for preservation of environmental quality. The principal focus of Environmental Citizenship Program activity is *community partnerships and community-based organizations* rather than school children. Hence, the program can have potential value for informal education of adults. Environmental Citizenship initiatives can cover a wide range of activities and are not restricted to educational activities.

To support the Environmental Citizenship process, Environment Canada has prepared a series of "primers" aimed at a general readership and intended for use in both formal and informal educational settings, community discussions, or neighbourhood-based study circles. The primers cover the essential concepts of environmental citizenship by linking responsibility for environmental quality to concepts of civic and democratic responsibilities already familiar to most Canadians. Other primers take up individual environmental issues such as ozone depletion, global warming, water conservation and endangered species/spaces.

In February 1993, thirty-five representatives of a wide range of environmental agencies and organizations from across Canada met in Merrickville, Ontario, to found the *Canadian Network for Environmental Education and Communication (EECOM)*. EECOM is intended to link all environmental educators and people/organizations with an interest in environmental education across Canada. EECOM is an information-sharing network open to formal, non-formal, informal, corporate, private sector, public sector and NGO environmental educators. Funded by Environment Canada and UNESCO/MABNET, EECOM takes no formal positions on environmental issues, but seeks to link its members to each other and to other information databases which can improve the quality of environmental education. The Network exists both in the form of a print newsletter which is published quarterly and mailed to members, and also as a listserver on InterNet. EECOM has been formally incorporated for only about six months and is just beginning to gain members and undertake activity and service strategic planning activities. Because EECOM's membership is intended to be comprehensive of environmental educators across the country, it necessarily includes educational activities occurring in post-secondary institutions and private and public sector staff development initiatives.

Other educational initiatives with a specifically adult focus include the environmental initiative of the Association of Canadian Community Colleges (ACCC), the umbrella association linking 168 technical, vocational, post-secondary adult training institutions in Canada. ACCC struck an "Environment Task Force" in 1989 to assess the needs and desires of its member institutions with regard to environmental education. Spin-offs from the activities of the Task Force included publication of a *Green Guide,* a compendium of case studies, tools and information intended to help member institutions implement changes which would render colleges more environmentally sustainable.

ACCC also hosted the formation of the Green Colleges Verts Consortium, a partnership of thirty-four countries around the world to link post-secondary institutions with an interest in environmental training programs. The intent of the consortium was to facilitate program development partnerships among member institutes as well help match program offerings and expertise in one centre with needs in other centres. Development of the consortium has been hampered by lack of funding for the next steps in its establishment, but when it reaches fruition, it will be a major asset to the international sharing of information and expertise on adult environmental education.

ACCC has also adopted the Environmental Citizenship process internally for application to its membership. As of this writing, 90 colleges and CEGEPs in Canada had designated environmental citizenship "contact people" at their institutions who work to initiate environmental citizenship projects on their respective campuses.

The most natural linkage between environmental education and adult learning is, of course, in post-secondary educational institutions such as colleges and universities. Most formal training of adults occurs in such settings in Canada. A recent nation-wide survey conducted by the Canadian Council for Human Resources in the Environment Industry compiled descriptions of over 6000 courses and training programs related to environmental issues and occupations offered in Canadian institutions of higher education. Many if not most of these programs are intended to train technical specialists and scientists for work in environment sector industries, academe, publicly funded research institutes or government agencies. While it is true that this range of training options and level of activity represents a considerable resource base of funding and expertise, such training does not necessarily effect the kinds of changes in attitudes and values which foster stewardship of the environment. Many training programs evince very narrow technical specializations which leave little time for considering the ethical, value, attitudinal, cultural and social dimensions of environmental issues. Furthermore, access to post-secondary education in Canada is becoming increasingly restricted to financial and social elites within Canadian society. Mass, popular education for environmental responsibility is not considered the mandate of colleges or universities. Consequently, the environmental learning needs of a majority of Canadians who do not attend college or university (perhaps 75% of the population) go unaddressed.

Since the release in 1987 of the report of the World Commission on Environment and Development, *Our Common Future,* Canada has responded at both the federal and provincial levels by establishing a number of "Round Tables" on the environment and the economy. The purpose of the Round Table movement in Canada is to facilitate multi-sectoral dialogue on environment and development issues facing the country. Round Table membership is typically a matter of political appointment but often includes representation from business, government, academe, labour, women's and aboriginal groups and environmental NGOs. In some cases, efforts have been made to establish community-level Round Tables where local development concerns can be discussed with an eye to finding an holistic consensus on what forms of development are likely to be most environmentally, socially and economically sustainable.

In many cases Round Tables include educators as members and nearly every Round Table at the provincial or federal level has included a public education strategy. The educational focus is upon sustainable development rather than environment per se, but outputs from these initiatives have included "educational" materials intended for the general public which touch on environmental issues, sometimes in depth. The pedagogical quality of these materials varies widely and they are often strongly biased in the direction of presenting the development philosophy of the government of the day. Nevertheless, they *are* intended for adults and some aim to replicate the Round Table process (multi-sectoral dialogue with consensus-based decision-making on development issues) from provincial to local/community levels. The effectiveness of this strategy has not been evaluated.

One major initiative which involves Canada's National Round Table on the Environment and the Economy is the *Projet de Societe,* and multi-sectoral process to both track and support Canada's implementation of the both the letter and the intents of *Agenda 21.* Chapter 36 of *Agenda 21* specifically addresses issues of education and public awareness and necessarily involves the Canadian government in these activities.

Canada is also home to many Non-governmental Organizations active on environmental issues (ENGOs). Notable among them are the Sierra Club, the Canadian Environmental Network, the World Wide Fund for Nature, Greenpeace, the Foundation for International Training, Friends of the Earth, Pollution Probe, and a host of others. Some ENGOs have been established to address specific issues such as animal rights, forestry practices or preservation of habitats. Others claim very broad interests and take positions on many social and environmental issues. Probably every community in Canada over 10,000 population would have one or more such organizations, some of them dealing with highly localized concerns.

As in other parts of the world, Canadian ENGOs take positions on specific issues. To support their public advocacy activities, they often publish material both in print and electronic media formats. Better funded ENGOs may also produce educational materials intended for use in schools. Some of the material is intended for adults. As with the materials and learning packages emanating from the Round Tables, educational programs and materials produced by ENGOs can vary widely in quality and pedagogical utility. Some of it is excellent and some quite misleading.

Some of the larger ENGOs such as Sierra Club, Greenpeace, and WWF maintain international operations and attempt to address global environmental issues such as preservation of rain forests, international commerce in radioactive materials, whaling, nuclear testing, toxic chemical dumping, et cetera. A few publish their educational materials in other languages than English or French.

Yet another form of environmental education which is aimed at adults consists of very short, very specialized training programs often delivered within private industry to address specific occupational issues of environmental management. Such training is often driven by established or impending regulatory legislation or else technological change which is affecting the processes or products of a given industry. One example is the skill upgrading of heating, ventilation and air conditioning service personnel required by new provincial legislation regulating ozone depleting substances under the Montreal Protocol. Such training is now required throughout the air conditioning industry for licensing of workers and also for purchase and use of CFC/HCFCs. Another example has been very wide-spread training in the Workplace Hazardous Materials Information System (WHMIS), a nation-wide system for labelling hazardous materials and providing health, safety, handling and incident clean-up information directly to the workplace and the workers who handle such materials.

Other training programs may be initiated by private sector companies, crown corporations (companies owned by provincial or federal governments) or public sector agencies to orient employees to new environmental policies, waste minimization initiatives or health and safety guidelines. Bell Canada has undertaken a major employee training program on office waste minimization which has saved the company millions of dollars in avoided waste disposal charges as well as conserving resources. Manitoba Hydro (the provincially owned electrical power utility in the province of Manitoba, Canada) is launching an extensive internal employee education program on sustainable development, and British Columbia Hydro also has a major environmental education initiative intended for its employees.

In general, these examples represent "education" for adults which is very narrow and instrumental. A transformation of values and attitudes is not a primary goal in many cases. Instead, the goal is to transmit information and technique which keeps a given company or organization in regulatory compliance or competitive with other companies in the same market niche. Relatively little attention is given to developing a critical, informed awareness of whole systems within the ecosphere, or the broader social and cultural causes/consequences of environmental degradation.

Finally, Winnipeg, Manitoba, Canada is headquarters for the International Institute for Sustainable Development (IISD), established in 1990 as part of Canada's national commitment to action on the WCED report, *Our Common Future*. IISD's mandate includes the promotion of sustainable development world-wide through research, public education and policy analysis. The institute is funded by the Manitoba Provincial Government, Environment Canada, and the Canadian International Development Agency (CIDA). It has addressed issues of corporate reporting for sustainable development, poverty alleviation, international trade policy, taxation and subsidy policy, national accounts, and entrepreneurial development for sustainable development.

IISD supports no broad-based mass education initiatives. Most of its educational "products" consist of policy analyses, reports and advisory documents intended for senior corporate and public sector managers and policy-makers. IISD's *Earth Enterprise Project* however, seeks to link several thousand sustainable development entrepreneurs in Canada, the USA and Mexico to exchange information, advice, business and marketing opportunities and expertise on developing more environmentally sustainable business practices.

KEY ISSUES IN ADULT ENVIRONMENTAL EDUCATION

Based on this admittedly cursory survey of adult environmental education in Canada, a number of issues emerge.

First of all, there is a great lack of pedagogically sound environmental education materials suitable for the general education of adults. Texts and learning support materials such as videos tend either to be highly specialized and technical or else non-existent. Attempts to adapt learning materials originally designed for children are usually not well received by adult learners. There are some environmentally-oriented television programs on both broadcast and cable bands in Canada, e.g., David Suzuki's *The Nature of Things*, which are well-researched and attempt to present basic environmental information to the general public. Such programs, however, must try to achieve their goals within the very considerable limitations of popular programming to serve an educational function.

Second, in spite of the fact that much environmental education material which is aimed at adults is highly specialized, there are many areas of adult technical and vocational training in which environmental issues are still not addressed. A glaring example of this is the fact that workers in the transportation sector in Canada may receive WHMIS training at some point, but not necessarily any information on the environmental and social dimensions of the transportation industries themselves. In general, and perhaps logically enough, most programs have been designed for adults working in occupations whose environmental impact is most obvious, e.g., resource-based industries, agriculture, and the energy sector. Far fewer resources have been available for increasing the general level of environmental literacy in the population, or to address environmental issues in occupational areas with a less direct connection to the outdoors, e.g., office workers, banking and accounting, administration and management, etc.

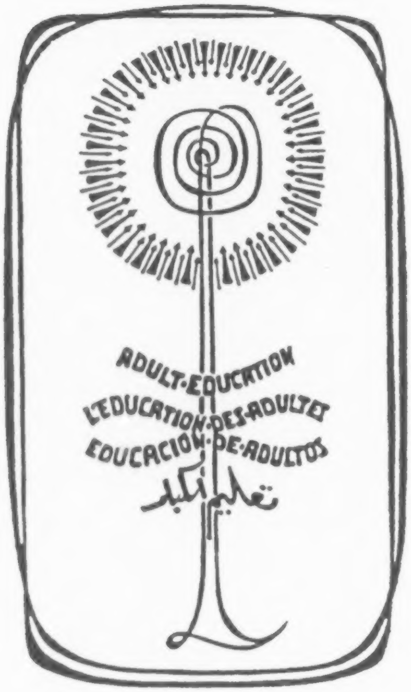
This fact identifies another issue in adult environmental education, namely, relatively high levels of environmental phrase recognition among adults but low levels of understanding of the underlying causes or concerns behind the issue. For example, many Canadians have heard about ozone depletion and global warming and recognize these terms as familiar public issues. When asked to describe how global warming occurs, or what individuals can do to reduce global warming, many adults cannot provide adequate answers. In many respects it might be said that the adult awareness of environmental issues reflects the time and modes of access to information available to adults regarding *any* issue of public concern. The mass media can deliver only very short "sound bites" and nibbles of information a few seconds in length. The many responsibilities and activities of adults supporting families also reduces the time and energy available for in-depth study of anything. The result can be very superficial recognition of phrases and issues with little comprehension of their significance.

Another challenge for adult environmental education is the fact that most environmental problems have arisen from very long-term processes and require very long-term remedies. Truly global problems have also come about because of the individual behaviours of hundreds of millions of people. These two realities more or less insure that any remedial actions taken by individuals will produce their effects in a very distant future in which the contributions made by individuals will be unrecognizable. This makes it very difficult for many adults to make a psychologically meaningful linkage between their present behaviour which is personal, immediate and concrete, and its long-term ecological consequences which are impersonal, far off in time and seemingly quite abstract. This is perhaps one reason for the popularity of recycling programs which allow individuals to take concrete, specific action by collecting and returning recyclable materials to neighbourhood depots. The link between personal action and conservation is visible and immediate. It is something a person can feel good about. *Reducing* one's consumption of material goods, a far more potent way of minimizing environmental impact, is also far less popular because reduction is *invisible*. The success of reduction is entirely based on what *does not happen*, e.g., resources not used, wastes not produced, options not foreclosed. The most effective action is therefore also the most difficult to sustain psychologically.

For this reason, the environmental education agenda can often slip off the table of public debate as it is displaced by issues which always seem more immediate and concrete, i.e., more *real*. When faced with the long-term choice of conserving a forest resource versus the short term political consequences of unemployment in a community dependent upon a forest industry, the political playing field is substantially inclined toward exploitation. Levelling this relationship is a major task of environmental education which cannot wait another generation.

Next, while more effort has been made in the last eight years to help decision-makers understand the links between environmental and economic systems, far less has been done to elucidate the links between these systems and social concerns. Human rights, militarism, equity issues and nationalism are still not seen as intimately linked to environmental matters. Moreover, many adults do not comprehend how failure to deal with environmental issues will impact their human and personal rights. Holistic approaches to integrated planning for sustainable development have tended to identify the "social" dimension of sustainability with human health concerns. Nevertheless, societies teetering at the edge of ecological collapse will be hard pressed to avoid draconian population control measures, resource rationing programs, public management of land and renewable resources, restrictions on individual freedom of movement and a host of other freedoms and privileges which in North America are taken for granted. The environmental education of adults must make these linkages more explicit and conscious.

Finally, a major issue for the environmental education of adults concerns "program delivery." It is relatively easy to imagine environmental education for adults delivered in post-secondary training settings like colleges and universities. To some degree, this is already under way. It is also possible to imagine educational programs delivered as professional development or skill upgrading to employed workers through companies or extension services such as those applying to agriculture. It is less clear how significant environmental education programming can be delivered to that very large segment of the population who are illiterate (in Canada an estimated 20% of the adult population), itinerate, or who perhaps hold multiple part-time jobs at a low skill level. Most adults have many responsibilities connected with employment and family. Their availability for programs is constrained by the North American lifestyle which is everywhere become more hectic and fragmented. Furthermore, their psychological receptivity to environmental education is condition by the nature of adult learning---need-driven, pragmatic, active and short-term. These factors do not so much present barriers to adult education on environmental issues as they define some of the parameters within which it must occur. Some adults may have the income, the leisure and the inclination to attend even classes or special interest courses in traditional school fashion. Many, however, will not. Yet everyone plays a role, for better or worse, in determining the fate of the Earth.



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